

# Aphasia in Neurology Practice: A Survey about Perceptions and Practices

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## Abstract

**Background:** Aphasia is one of those clinical conditions, where the role of affiliated professionals, mainly speech language pathologists (SLPs) is substantial in diagnostic assessments, therapy, and rehabilitation. There is no study to focus on neurologists, with respect to their perceptions and practices about aphasia, the disease, as well as the profession of SLP. **Objective:** To reach out to the neurologist community in India and learn about their perceptions and practices about the nature of the ailment and role of speech language therapy (SLT). Our premise was that observations and inferences from a questionnaire-based survey will be subsequently helpful in planning educational activities targeted to neurologists with more focus on specific gaps in perceptions and practices. **Material and Methods:** Three neurologists and two SLPs collaboratively developed the questionnaire. The aim was to probe the issues which were likely to have a bearing upon optimum service delivery to persons with aphasia by a dyad of neurologist and SLP. The survey was set in “Google Forms” and sent by “WhatsApp” and email to approximately 500 practicing neurologists in India. We employed a nonprobability sampling design for ease of administration with a combination of “chunk sampling” and “snowball sampling.” Telephonic reminders were made to almost all. **Results and Discussion:** We received 100 responses. The mean age of respondents was 50.64 (SD +/- 12.60) with a range of 28–78 years. The mean number of years of experience as a neurophysician was 19.88 (SD. +/- 12.72) with range of 1–47 years. Females were only 8%. Apparently, the proportion of neurologists working in large corporate and large public sector institutions from tier one and tier two cities was higher, who are more likely to have SLP and related rehabilitation facilities in their institutions and hence harbor more conducive attitudes to SLT in aphasia. The ground reality from tier three cities and small private and public sector hospital and solo practitioners may be somewhat worse than this. Many responses were in conformity with facts and in tune with desirable attitudes as per guidelines like aphasia being a detrimental factor in stroke recovery, doing assessment of handedness, paying attention to neuroimaging correlations and associated cognitive functions, not resorting to unnecessary pharmacotherapy, being aware about efficacy of SLT, and fairly good chances of recovery. However, many more answers highlighted a need for emphasis in Continuing Medical Education like not being aware about community burden of aphasia in comparison to a few better known neurological diseases, not paying attention to psychosocial aspects apart from biological ones in assessment and rehabilitation, not using a standardized and validated battery, not confident about role of SLT in chronic stable aphasia and need for longer and intensive therapy, and being unconcerned for the value of advocacy for aphasia, like the role of Self-Help Groups. **Conclusion:** The thrust areas, pertaining to gaps in perception and practices identified through this study, can be viewed as “an in-time input.” We hope that changes in some of the perceptions and practices can be attained through an emphasis on education and training at multiple levels right from the undergraduate to the practicing physicians. A few more themes and domains will need advocacy actions targeted to different stakeholders.

**Keywords:** Aphasia, neurophysicians, perceptions, practices, speech-language pathology, speech-language therapy

**Guest editor’s notes:** In this first of its kind survey, while a few observations are reassuring, many more are a matter of concern, which must and can be addressed to by concerted amendments and changes in emphasis in ‘education for aphasia’ and undertaking a few modes of advocacy.

## INTRODUCTION

Questionnaire-based surveys about perceptions and practices among physicians with reference to a given clinical condition have been regarded as a useful tool to understand the barriers and facilitators for optimum service delivery and also to suggest some interventions for the condition under consideration.<sup>[1]</sup>

Aphasia is one of those clinical conditions, where there is substantial role of affiliated professionals, mainly speech language pathologists (SLPs) and to a lesser degree the clinical neuropsychologists and occupation therapists.

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Neurologists and internists are the primary physicians for persons with aphasia (PWA), but their role in standardized clinical assessment, speech language therapy (SLT), and rehabilitation is secondary. Hence, it becomes imperative that the referring physicians harbor attitudes conducive to collaborative practices.

Aphasia is a relatively neglected condition in proportion to its community incidence, prevalence, and social burden as measured by Disability Adjusted Years of Life (DALY).<sup>[2]</sup> There is a huge diagnostic and treatment gap, which has become a greater irony now with the recent development of better evidence-based tools for diagnosis and therapy and yet the same is not being delivered to PWA.<sup>[2]</sup>

There have been many studies on awareness and knowledge about aphasia in public. Awareness of aphasia is low in all parts of the world and the actual knowledge is still lower, even among health professionals.<sup>[3,4]</sup>

With respect to professionals, a survey conducted by Tiwari and Krishnan in 2011<sup>[5]</sup> was responded by 61 SLPs (of 540 approached). The respondents raised various “client-related” and “clinician-related” issues that hinder the assessment and management of aphasia. The major client-related issues included poor economic status, distant therapy centers, poor family support and subjects’ motivation, associated problems (e.g., hemiplegia), acute stage, and lack of awareness about aphasia and its management in the common public. The prevailing “clinician-related” issues included the lack of adequate time for rehabilitation and the general inefficiency of the therapy techniques. It appeared as if there had been no perceptible change in status of aphasiology in India over a span of preceding 4–5 decades.<sup>[6]</sup>

Temple *et al.* conducted a survey of physicians’ use of and satisfaction with neuropsychological services because the later shares some practices with SLT for aphasia.<sup>[7]</sup> Ten percent of 5000 physicians surveyed, indicated that a lack of

familiarity with neuropsychology and geographic proximity to a neuropsychologist were the main barriers to referral.

It is difficult to find studies surveying perceptions and practices of physicians in general, and neurologists in particular with respect to aphasia.<sup>[8–10]</sup> To the best of our knowledge, ours is the first study to focus on neurologists, specifically about their perceptions and practices with regards to aphasia, the disease, as well as the profession, SLP.

## MATERIAL AND METHODS

Three neurologists and two SLPs collaboratively developed the questionnaire. The aim was not to test theoretical knowledge about aphasia. We wanted to probe the issues which were likely to have a bearing upon optimum service delivery to PWA by a dyad of neurologist and SLP. After many rounds of email exchanges, we created 33 questions in three domains: a. demographics of neurologist respondents, b. neurology of aphasia, and c. SLPs and their services [Table 1].

The questions were of multiple types: The ones with one of many choices, more than one from many choices, open-ended listing, and closed-class single answers. The survey was set in “Google Forms” and sent by “WhatsApp” to approximately 500 practicing neurologists in India. We employed a nonprobability sampling design for ease of administration with a combination of “chunk sampling” and “snowball sampling.” Telephonic reminders were made to almost all. We received a total of 111 responses and after deleting the duplicates, 100 responses were analyzed. Barring simple enumeration and calculations for means and percentages, additional statistical analysis was not needed.

## RESULTS AND DISCUSSION

### Demographics

The mean age of respondents was 50.64 (SD +/- 12.60) with a range of 28–78 years. The mean number of years of experience

**Table 1: Three domains with 33 questions**

Demographics	Neurology and Aphasia	Speech Language Therapy
Age	Post stroke aphasia %	How often recovery in aphasia?
Years of experience	Aphasia as a prognostic factor for stroke	Whose role more in recovery? Natural/SLT/ Social
Location, City	Neuroimaging correlation	Optimum duration of SLT
Type of work setting	Cognition and aphasia	Utility of SLT in chronic aphasia
Access to rehabilitation services	Thoughts in the mind of PWA	Mechanism of action of SLT
Access to SLT services	Handedness and dominance	Poor prognostic factors
Having attended a CME on aphasia	Language proficiencies	Reasons for nonreferral to SLP
Having had any exposure about aphasia in public media	Is aphasia: Biological/Psychological/Social	Remuneration for SLPs
	Prevalence more or less than Parkinsonism?	How often do you refer a PWA to SLP?
	How do you diagnose?	In which stage do you refer: Acute/ subacute/ Early/ late
	Language organization in brain	
	Do you use pharmacotherapy?	
	If yes, which pharmacotherapy?	
	Causes other than stroke	

as a neurophysician was 19.88 (SD. +/- 12.72) with range of 1–47 years. Females were only 8%.

We are uncertain if the samples of this survey were a good representation of the overall community of neurophysicians in India, including members of Indian Academy of Neurology (IAN). It might be slightly skewed in favor of respondents from large and some medium size corporate private hospitals and also large public sector institutions, as compared to small private hospitals and solo office practitioners [Table 2]. The ground reality may be somewhat different, with many neurologists in smaller cities and solo practice being missed out. The fact that only a few neurologists responded from small public sector hospitals is a sad reflection of poor reach of neurology services to the underserved population of India.<sup>[11]</sup>

These skews may have a bearing upon survey results. The neurologists working in large corporate and large public sector institutions from tier one and tier two cities are more likely to have SLP and related rehabilitation facilities in their institutions and hence harbor attitudes more conducive to SLT. The ground reality from tier three cities and small private and public sector hospital and solo practitioners may be somewhat worse than this. Those working in tertiary care hospitals had higher probability of working with or having access to rehabilitation professionals (78) and SLPs (77) as compared to 59 in smaller settings.

The response to the question that “have you attended any continuing medical education (CME) on aphasia in last 5 years?” was nearly evenly split: “yes” -47%, “no”-53%. We anticipated that CMEs on aphasia would have been rather infrequent. It is certain that the “yes” response would have been much higher for many other neurological diseases with relatively lower community burden.

**Perceptions and practices**

**Q-1. In your clinical experience, approximately, what percentage of stroke survivors have aphasia as a long-term disability?**

5%	15%	30%	50%
(13)	(44)	(41)	(5)

The consensus in textbooks, which is based upon good community-based and hospital-based studies, is 25% to 30%.<sup>[12]</sup> The data from hospital-based stroke banks or observational studies indicate that post stroke aphasia may be present in up to 40% of subjects in acute stage before discharge.<sup>[13]</sup> Yet, the perception by 57% of neurologists that prevalence of aphasia in stroke survivors may be as low as 15% or less needs to be addressed.

**Table 2: Work Setting**

Large/Corporate Private hospital	Public Sector Hospital (Large/Teaching)	Solo practice	Small Private hospital	Public Sector Hospital (Small, Nonteaching)	Group practice	Others
42	29	16	15	0	0	0

**Q-2 How often do you refer persons with aphasia to speech therapists?**

Commonly	Occasionally	Rarely	Never
(56)	(31)	(14)	(1)

The ideal answer should have been “commonly.” It is a matter of concern that a substantial 44% of neurologists rarely or only occasionally refer PWA to SLPs.

**Q-3. As a neurophysician, how do you rate the presence of aphasia as detrimental factor to the prognosis in stroke recovery?**

Slightly worse outcome	Very verse outcome	No difference
(51)	(48)	(1)

This perception about aphasia being associated with worse prognosis in stroke is in concurrence with published data.<sup>[14]</sup>

**Q-4. How often do you pay attention to correlation between clinical profile of aphasia and the lesion as seen on neuroimaging?**

Often	Occasionally	Never
80	20	2

This is a fairly satisfactory response that 80% of neurologists pay attention to this correlation. However, it is to be noted that clinicoanatomical correlation between lesions location and size as seen on CT scan and MRI brain on one hand and the aphasia syndrome diagnosis or aphasia clinical profile on the other is not very strong.<sup>[15]</sup>

**Q-5. How often do you pay attention to the presence of associated cognitive deficits in PWA?**

Frequently	Occasionally	Never
69	29	4

Ideally, a much greater proportion of physicians should assess the cognitive functions in PWA. Aphasia is unlikely to exist in its pure form without any associated impairments in one or more cognitive functions such as memory, visuospatial functions, executive functions, attention, to name a few. Assessment of these associated conditions is crucial in prognosis, as well as in therapy and rehabilitation.<sup>[16]</sup>

**Q-5-a. How often do you think about mental and thought state of a PWA?**

Frequently	Occasionally	Never
53	42	7

The ideal answer should be “frequently.” The aphorism to “know the person at the other end of the stethoscope” is

more applicable to PWA. Not being able to say something or converse does not mean, not having anything to say or speak. Even a person with severe global aphasia is capable of feeling emotions and having deep and profound thoughts. It is naturally expected from a neurologist that while caring for a PWA, s/he will never let this realization slip away from the mind. In fact, s/he must proactively try to delve into the mind of the person, howsoever severe the loss of communication may be.<sup>[17]</sup>

**Q-6. How often you make a proper documentation of Handedness in PWA?**

Frequently	Occasionally	Never
92	9	1

A satisfactory response rate, though ideally it should be nearly 100%.

**Q-7. How often do you make a note of language proficiency (mono- or multilingualism) in PWA?**

Occasionally	Frequently	Never
47	35	20

India is predominantly a multi-lingual country, and assessment and therapy for PWA has to be carried out in more than one languages of choice, as per the consensus arrived at by joint discussion.<sup>[18]</sup> The neurologists need to be sensitized about making a note and preferably a standardized assessment of language proficiency in PWA. Better yet, the practitioners could make referrals to the SLPs for assessment of aphasia in all the languages used by the PWA.

**Q-8. Do you consider aphasia as predominantly a biological/neurological disorder?**

*or a psychological/behavioral disorder or a social disorder?*

	Biological	Behavioral	Social
Yes	102	21	28
No	0	68	57
May be	0	13	17

While aphasia is certainly a biological disorder, it is important to emphasize its multidimensionality. It is also a behavioral and social state, which needs attention for therapy and rehabilitation.<sup>[19]</sup> Only one-fifth to one-third of the respondents agreed with these additional dimensions, which needs to be addressed.

**Q-9. What is the proportion of right handers (RH) and nonright (left handers and mixed) (LH) handers in general population?**

RH 90: LH 10	RH 80: LH 20	RH 70: LH 30	RH 60: LH 40
79	12	9	2

The perception about handedness ratios in general population is in accordance with published studies.<sup>[20]</sup>

**Q-10. Community prevalence of Aphasia in comparison to Parkinsonism?**

More than PD	Less than PD	About Equal to PD
50	38	14

The fact is that community prevalence of Parkinsonism is much less than that of aphasia.<sup>[21,22]</sup> Yet a contrary perception is carried by nearly equal proportion. This finding indicates that the advocates for aphasia to increase the awareness about the magnitude of community burden of aphasia, in comparison to other neurological and systemic diseases, among the medical (neurology) practitioners.

**Q-11. How do you diagnose aphasia yourself?**

History and a brief unstructured bedside/office examination	Brief structured examination with a standardized battery	Detailed assessment with a standardized battery	History only
76	16	9	1

The responses to this question underscore the crying need for creation, popularization, easy availability, and training and habitual use by neurologists of a brief structured assessment with some standardized and validated Indian test batteries.<sup>[23,24]</sup>

**Q-12. Localization of language function in brain?**

Loosely localized in left hemisphere with some role of right	48.6%
Widely spread on both side with some dominance on left	27.9%
Strictly localized in left hemisphere between Broca and Wernicke area	23.4%

It is true that the view expressed in option one above is no longer supported by research methods like functional neuroimaging.<sup>[25,26]</sup> It is satisfactory to note that majority of neurologists are in tune with current understanding about organization of language function in brain, yet the remaining quarter needs to be addressed to.

**Q-13. What causes of aphasia, other than stroke, have been encountered by you?**

Panel 1

Panel 1: Causes of Aphasia other than stroke (Total responses 102)		
1.	Degenerative dementias (FTD, AD)	51
2.	Brain tumor, SOL	42
3.	Traumatic brain injury	41
4.	CNS infections	19
5.	Parkinson's disease and PD +	8
6.	Demyelination (MS)	7
7.	Psychogenic	7
8.	Epilepsy (Landau-Kleiffner Syndrome)	6
9.	Post Radiation	2
10.	Metabolic	2
11.	Hypoxic	2
12.	Vasculitis	2
13.	Cerebral venous thrombosis	2
14.	Subdural hematoma	1
15.	Developmental	1
16.	Pseudo-bulbar palsy	1

The collective pool of experience of one hundred neurologists about all possible common and rare causes of aphasia, other than stroke, is true to what is mentioned in textbooks.<sup>[27]</sup>

**Q-14. How often do you refer a PWA to a SLP during acute stage (1–2 weeks), subacute stage (around 2–4 week), early recovery phase (1–6 months), and late chronic phase (6 months and later)?**

	Acute Stage	Subacute Stage	Early recovery phase	Chronic phase
Never	33	7	7	20
Occasionally	32	37	35	38
Frequently	37	58	60	44

It is a common practice all over the world that most of the referrals and subsequent SLT for PWA are conducted during subacute and early recovery phases following brain damage.<sup>[28]</sup> However, there are many studies showing benefits of intervention in acute as well as chronic stages.<sup>[29]</sup> Neurologists need to be made aware of these findings and encouraged to consider them in their practices.

**Q-15. In your opinion what could be reasons for low or nil reference of PWA to SLP by neurologists? (You can tick more than one)**

1.	Lack of encouraging feedback from SLP	59
2.	Being unaware about the value of SLT	58
3.	Lack of encouraging feedback from PWA	44
4.	Being unconvinced about the value of SLT	32
5.	Being very busy and forgetting this aspect	20
6.	Lack of availability and access to SLP services	19

A few more reasons cited were financial constraints, fear of malpractice litigation, and lack of home caregiver.

These responses are a sort of wakeup call. A whopping 90% of neurologists are either unaware of the value of SLT (58) or not convinced about its efficacy (32) apart from nonavailability of SLT services to them (19).

Equally disturbing is the “lack of encouraging feedback from SLPs” (59) and from PWA (44). The need for dialogue across the complimentary professions and clients cannot be overemphasized.

**Q-16. How often do you prescribe some medicines for recovery of aphasia?**

Occasionally	Frequently	Never
37	35	30

A sort of ambivalence is reflected in responses for this question, which is true to the current paucity of robust evidence about the efficacy of pharmacological interventions in recovery from aphasia.

**Q-17. Name some medicines which you prescribe for aphasia?**

Panel 2

**Panel 2: Medicines for Aphasia**

Medicines Prescribed for Aphasia	
Piracetam	33
Memantine	3
Acetylcholine receptor inhibitors	21
Dopamine agonists	9
SSRI	9
Secondary stroke prevention	3
Vitamins supplements	4
Neuroprotective age	1
Modafinil	1
Nootropics	2
Ginkoba	1

Only 66 respondents listed names of some medicine (s); 14 with single molecule and 52 with some combinations. Only one respondent raised the issue of affordability. More frequent mention of piracetam is reflective of marketing efforts by the industry. While relatively better evidence is available for memantine, yet it is not commonly prescribed.<sup>[30]</sup>

**Q-18. How often have you seen PWA recovered fairly well from aphasia, during a long-term follow-up?**

Frequently	Occasionally	Never
58	44	0

It is heartening to note that neurologists are not trapped by a nihilistic perception about recovery in aphasia. Natural recovery does occur to some extent.<sup>[31]</sup> More promisingly, reliable data from Cochrane and other sources (meta-analysis, systemic reviews of randomized controlled trials) have shown robust evidence for the efficacy of SLT.<sup>[32]</sup>

**Q-19. What could have been the relative role of the following in some of your patients who recovered well from aphasia: natural recovery, speech language therapy, psychosocial factors?**

	Natural recovery	Speech therapy	Psychosocial factors
Never	2	2	13
Somewhat	43	64	71
Maximally	57	36	18

It is good that in addition to the bedrock of natural recovery, neurologists accept the role of SLT and psychosocial factors. This perception, informed or not informed by reading the current literature, is in consonance with recent emphasis upon the Life Participation Approach to aphasia (LPAA).<sup>[33]</sup>

**Q-20. For successful SLT how much duration in months is needed?**

6-12 Months	3 Months
70%	27%

A bimodal distribution of answers was observed. One grouping was around 3 months, which corresponds with common practice. Another cluster of responses is for 6–12 months, which can be considered as an enlightened opinion, supported by clinical trials.<sup>[34]</sup> We should also have enquired duration of therapy in hours per day, duration in hours per full season, and number of sessions per week or per month, but could not do so.

**Q-21. Is SLT useless in a PWA, with a history of 2 years and no more improvement after initial 3 months?**

	Yes	No
Useless	60	40

The results indicate that evidence about efficacy of SLT in chronic stable aphasia (e.g., beyond 2 years post onset) has not reached well among neurologists.<sup>[35]</sup>

**Q-22. How does SLT improve speech and communication in PWA?**

Neuronal Plasticity	Behavioral Conditioning	Memorization of practices
93.7%	73.9%	51.4%

A cogent and comprehensive “Theory of Speech Language Therapy” is still a work in progress.<sup>[36]</sup> Modulation of neuronal plasticity by appropriately chosen therapy practices is most agreed upon mechanism. It is good that this was also the most preferred answer in our study. However a notable number of respondents chose the role of behavioral conditioning and memorization of practices . It is probably a lingering hangover from the era of skinner, when the behaviorist model was very dominant in 1950s-60s. It is probably a lingering hangover from the era of Skinner, when the behaviorist model was very dominant in 1950s-60s and is still influential as a residual effect.<sup>[37]</sup>

**Q-23. What are the poor prognostic factors for recovery in aphasia? [Table 3]**

Among biological factors, the size, site, nature and number of lesions, comorbidities, and age are really important. However, the initial severity of aphasia should have been given higher recognition. Multilingualism and education may in fact be good pointers for prognosis.<sup>[38]</sup>

Among social factors, lack of family support, lack of awareness, nonreferral, and failure of compliance have been rightfully identified as salient.<sup>[39,40]</sup> Desirably, “public sector failure” in India and “lack of patient support groups or self-help groups” should have been high in priority listing.<sup>[41]</sup> It is good that many failures on the parts of SLPs and neurologists were enumerated [see Panel 3].

**Q-24. What do you think about current financial remuneration of services by SLP in India?**

Sub-optimally paid	Paid fairly well	Extremely under-paid	Well-paid
22	10	6	4

Only 42 said that they are aware about remunerations for SLP. Hence, the percentages are based upon from responses obtained from them only.

It is true that one of the main reasons for low referral and poor compliance with SLT is financial constraints (out of pocket expenses in the absence of good medical insurance) for the low- and middle-income class, because the public sector has not come up to the expectations. Moreover, even those in upper middle and upper economic class do not have a mentality to pay a respectable professional fee to SLPs, who are really underpaid, a perception rightly endorsed by neurologists.

**Table 3: Reasons for poor prognosis in recovery from aphasia**

Part A: Biological Factors		Part B: Social Factors	
Size of lesion	34	Lack of family support	32
Nature of lesion	18	Lack of awareness	15
Aphasia type	17	Lack of referral or nonreferral to SLT	14
Site of lesion	14	Lack of compliance with SLT	11
Systemic comorbidity	11	Failures on the part of SLPs and Neurologists	10 (See the Panel)
Psychiatric comorbidity	11	Psychological factors	7
Old age	11	Constraints with finances	5
Number of lesions	9	Low family education	2
Stroke severity and neurological comorbidity	8	Public sector failure	1
Low education	6	Lack of patient support groups	1
Aphasia severity	6		
Lack of compliance with treatment for secondary prevention	3		
Lack of compliance with pharmacological treatment	2		
Alcohol habituation	2		
Multilingualism	1		
Male gender	1		

**Q-25. Did you come across some mention about aphasia in popular media-newspapers, magazines, books, television, movies?**

Rarely	Never	Occasionally	Frequently
45	31	21	1

There are major implications of the fact aphasia rarely finds a mention in media, for service provision and research funding.

Sherrat searched a number of written news databases for the term “aphasia” and “Parkinson’s disease.” Aphasia was mentioned only once for every 27 PD-related articles. The information on aphasia was limited and lacked details regarding its complex nature, effects on the person and their family, recovery, and rehabilitation. The depiction of aphasia is often confusing and inaccurate, with media focusing on dramatic aspects or medical opinion. Aphasia is also used colloquially to indicate silenced or tongue-tied, or for a naming difficulty in nonscientific sources.<sup>[42]</sup>

Hughes investigated the knowledge and attitudes of journalists and SLP students on SLT and its presentation in the media.<sup>[43]</sup> Journalists were significantly less concerned about current funding and recruitment difficulties. Students expressed strong feelings about a perceived under-representation of SLT in the media and the potential impact of this on public awareness and services.

**CONCLUDING DISCUSSION**

It is for the first time that an attempt has been made to peep into minds of neurologists about the subject of aphasia, not for factual knowledge, but mainly about their perceptions and practices. A third of the questions were referring to SLPs and SLT, with which, sadly many neurologists have inadequate interaction.

The results have endorsed our a-priori expectations that there will be many areas where the perceptions and practices will be suboptimal with room for improvement along with some areas where the situation will be fine [Panel 4]. Unless we identify the gaps or barriers, we cannot act to ameliorate them. We strongly believe that changes in some of the perceptions and practices can be attained through an emphasis on education and training at multiple levels right from the undergraduate level to the practicing physicians. A few more themes and domains will need advocacy actions targeted to different stakeholders [Table 4]. Updated and appropriately modified guidelines from authentic sources, with explicit statements, do help but may not be enough. Human behavior at times may be difficult to change. Barriers to change should be identified as a first step. A recent Cochrane review showed that interventions tailored to prospectively identified barriers are more likely to improve professional practice than no intervention or mere

**Table 4: The perception and practice which need to be changed**

The Perception and Practice which needs to be changed	The Corrected fact or Desired State of Affairs	Target(s) of Action: Educational/Advocacy
Post stroke aphasia % A substantial 44% of neurologists rarely or only occasionally refer PWA to SLPs. Testing language proficiencies	It is not low (15%) but higher at 30%-40% The ideal answer should have been “almost always” or “commonly.” A simple linguistic proficiency test should be performed.	MBBS, MD, DM, Practicing physicians Joint CME sessions of neurologists and SLPs at local, regional, and national level. Dissemination, training, and popularization of LEAP.
Is prevalence of aphasia more or less than Parkinsonism? Is Aphasia: Biological/Psychological/Social	Aphasia is much more common than PD and many other better-known neuro diseases. Aphasia is multidimensional. Also a behavioral and social state.	Emphasis on community burden of aphasia in medical education. Emphasis on social model of aphasia in medical education.
How do you diagnose aphasia? History and unstructured battery	Need for a structured validated test battery in the armamentarium of doctor.	Dissemination, training, availability, and popularization of brief validated aphasia test batteries for neurologists.
Language organization in brain	To shed the impression that language is strictly localized on left side only in the peri sylvian region.	Emphasis on recent updated models of language organization in brain in medical education.
Whose role more in recovery? Natural/SLT/ Social	Neurologists tend to ignore or down play role of social factors.	Emphasis on social aspects in recovery of aphasia in medical education.
Optimum duration of SLT and utility of SLT in chronic aphasia	Three months of SLT may not be adequate.	Emphasis on value of intensive and long duration SLT even in chronic cases.
Mechanism of action of SLT	Many still believing in outdated behavioral model.	Emphasis on recent theories of SLT in medical and SLP education.
Poor prognostic factors	Poor realization of role of advocacy for public sector and patient support groups.	Advocacy training workshops jointly for neurologists and SLPs.
In which stage do you refer: Acute/subacute/ Early/late	Nonreferral of chronic PWA for SLT in acute and chronic stages.	Emphasis on the fact that SLT is effective in all stages.
Reasons for nonreferral to SLP	Lack of knowledge and being not convinced about the efficacy of SLT. Lack of feedback.	To drill home the message that evidence for the efficacy of SLT is robust.
How often do you refer a PWA to SLP?	Every PWA needs to be referred many times over.	Joint sessions on aphasiology at local, regional, and national levels.

**Panel 3: Failures on the part of SLPs and Neurologists**

- 1 Cognitive communication stimulation not offered
- 2 Leaving the PWA without any guidelines
- 3 No assessment of mood and behavior of PWA and SOs
- 4 Not appreciating the language dysfunction in detail
- 5 Not properly instructing the caregivers about home care
- 6 Failure to recognize or diagnose aphasia
- 7 Failure to prescribe antidepressants
- 8 Not offering Intensive SLT
- 9 Lack of encouragement and proper guidance<sup>[37,38,39]</sup>

**Panel 4: Correct perceptions and good practices (intervention not needed)**

- 1 Presence of aphasia is a detrimental factor to the prognosis in stroke recovery
- 2 Neuroimaging correlation: Frequently done
- 3 Cognition and aphasia: Attention paid
- 4 Thoughts in the mind of PWA: Given importance
- 5 Handedness and dominance: Always tested
- 6 Do you use pharmacotherapy? Commonly but not with high confidence
- 7 If yes, which pharmacotherapy? As mentioned in literature
- 8 Causes of aphasia other than stroke: True reflection of clinical experience
- 9 How often recovery in aphasia?

dissemination of guidelines. Research is required to determine the effectiveness of tailored interventions in comparison with other interventions.<sup>[44]</sup>

We acknowledge some limitations of our study. Nonprobability sample designs (chunk and snowball) were used for ease of administration. It is not possible for us to know whether respondents differed from nonrespondents in important ways. A higher response rate and random sampling would have enhanced the generalizability of the results. Ideally, all questionnaire-based surveys should be vetted and tested on rigorous psychometric criteria, which has not been done here. Many more questions in different domains could have been added to cover more themes and concepts, but we realized that long questionnaire is less likely to be returned. We did not attempt a multi-variant analysis between demographic variables and responses in the two domains, as the small numbers in different subgroups would have precluded reliable statistical inferences. Actions and interventions to overcome the barriers and improve the faulty perceptions and practices were not a part of this study. Yet, it can be said with reasonable confidence that well-implemented interventions for these issues will result in perceptible changes in perceptions and practices.<sup>[44]</sup>

The thrust areas identified through this study can be viewed as “an in-time input.”

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There are no conflicts of interest.

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