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Speech and Language in Schizophrenia: A Psychiatrist Perspective

[1] Ambar Gupta, [2] K Sherly, [3] Shubham Sahu, [4] Chandrakant Bangre
[1] *Speech Language Pathologist, PNR Society for Relief and Rehabilitation of the Disabled, Bhavnagar, India*
[2] *Consultant, Speech Language Pathologist, Tamilnadu, India*
[3] *PG Student: Masters in Audiology and Speech Language Pathology*
[4] *Regional Audiologist, GN Resound, Gujarat, India*

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ABSTRACT
Objective: Speech-language pathologist (SLP) are professionals who engage in the areas of speech, language, communication and swallowing across different age groups. Disordered language is a common clinical manifestation of schizophrenia. The study aimed to find the awareness of speech language pathologist among psychiatrist.
Method: Self-rating questionnaire of 10 questions was circulated among 30 psychiatrist in India. The questions were related to the role of SLP in delivering rehabilitative services in psychiatric disorders like schizophrenia.
Result:56.7 % of neuropsychiatrists admit speech and language problems in schizophrenia. 86.66% believed that speech and language problems are detrimental factor for recovery.80.0% of neuropsychiatrists rarely or occasionally refer to Speech Language Pathologists.
Conclusion: We strongly believe that changes in some of the perceptions and practices can be attained through collaborative clinical studies and practices by SLP and neuropsychiatrists together.
KEY WORDS: Speech, Language, Communication, Psychiatrist, Schizophrenia, Speech Language Pathologist.

I. INTRODUCTION

Speech and language pathology studies the causes, assessment, treatment and prevention of communication disorders (oral and written language, voice, hearing and oral motor skills (Romero, 2012). Speech-language pathologist (SLP) are professionals who engage in the areas of speech, language, communication and swallowing across different age groups. Communication includes the production of speech and fluency, resonance, language, voice, hearing and cognition. Swallowing incorporates all aspects of swallowing, including feeding-related behaviors (American Speech-Language-Hearing Association, 2016).

SLP plays a vital role in both the inpatient and outpatient settings (Hansen, Chenoweth, Thompson et al., 2018). It is crucial for the SLP to meet the patient as early in the care process as possible (ideally in the multidisciplinary clinic) as this facilitates patient compliance and ultimately improves outcomes for patients (Starmer, Sanguineti, Marur et al., 2011). Also provide consultation for patients, families, and work in a multidisciplinary team in the areas of communication, cognition, and swallowing function. Speech and language therapists are experienced listeners, skilled in the identification and interpretation of disordered language (Faber, Abrams & Taylor, 1983).

Mental health refers to a condition of physical, social, and mental well-being which can be affected by individual, biological, social influences and perspectives (WHO ICF, 2001). Disorders of ill mental health may be temporary, undergo or reoccur and cause personal distress or reduce functioning in one or more areas of an individual's life. Serious mental illness (SMI) is nothing but serious functional impairments due to a diagnosable mental illness like schizophrenia, bipolar disorders, major depression (Cohen, McGovern, Dinzeo et al., 2014). Deficits in speech concerns to reduced production (e.g., alogia), variability (e.g., blunted affect) and content (e.g., indigence of content: speech that lacks meaning, irrespective of quantity of speech) are primary of SMI (American Psychiatric Association [APA], 1994; Tremeau, Malaspina, Duval et al., 2005; Cohen, Morrison, Brown et al., 2012).

Associated with mental health, the incidence and prevalence of speech, language and communication and swallowing difficulties are quite high in adults. Specific mental health problems like psychosis, schizophrenia, dementia and depression have communication and swallowing difficulties commonly associated with them. However, often problems are not

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acknowledged and there is a probability that they may be obscure by the mental health symptoms [1].

Communication disturbances are fundamental symptoms of both schizophrenia and mania (Andreasen, Grove, 1986). More recently, the link between language and schizophrenia has been strengthened by Crow's theory (Crow, 2008), which has hypothesized that nuclear symptoms of schizophrenia represent a failure in establishing the left hemisphere dominance for language.

Disordered language is a common clinical manifestation of schizophrenia. It is generally believed that such disordered language results from a disturbance of thinking consequently referred to as a formal thought disorder (Benson, 1975). Few studies have proposed that language disturbances impute to nonlinguistic component, such as abnormalities of thought (Brown, 1973; Fromkin, 1975) or inadequate information processing (Frith, 1993; Frith& Allen, 1988; Schwartz, 1978).

Cutting (1985) suggests that patients with schizophrenia have particular difficulties with pragmatics and prosody and that right hemisphere dysfunction is a likely cause of their impediment. Speech could be unintelligible because of slurring or articulation problems and atypical pitch may be used (Darby, 1981). The content of schizophrenic speech may describe the delusions and hallucinations the patient experiences, and delusions coherently expressed, may be symptomatic of paranoid schizophrenia (American Psychiatric Association, 1987).

Speech deficits in schizophrenia affect both the linguistic (morphosyntactic, semantic) and the communicative (pragmatic) level. At the linguistic level, speech is identified by word-finding difficulties (Andreasen, 1979), which can lead to stilted speech or neologisms, and also by reduced verbal and speech fluency (Covington et al., 2005). In addition, syntactic complexity is impaired in spite of correct use of syntactic rules [3, 11]. On the other hand, abnormal morphology is quite rare (Covington et al., 2005). At the pragmatic level, patients with schizophrenia show difficulties in understanding proverbs, metaphors and idioms as much like sarcasm and irony (Mitchell & Crow, 2005) [11], having a general susceptibility to concretism [5].

Considering that pragmatic deficits compromise the integration of individuals with schizophrenia and that pragmatic deficits can be assessed and treated as part of Speech Language Therapy (SLT), it could be an appropriate approach to treat language deficits observed in individuals with schizophrenia [4]. Pragmatics deficits are observed in many clinical populations one of them is schizophrenia (Haas et al., 2015), the discourse level attests to a lack of turn taking, discursive connectors and prosody alteration (Bambini, Arcara, 2016). Attention and working memory issues are manifest early and they do not diminish even though the psychotic process is resolved, suggesting that there is no dependence on positive symptoms (Barrera, 2006).

It is significant to inspect the scientific evidence of SLP in schizophrenia for both clinical and research grounds, so the aim of this study was to find the awareness of speech language pathologist from a psychiatrist perspective.

II. SUBJECTS AND METHOD

Survey was done using a questionnaire among the practising psychiatrist in India. Total doctors included in the study were 30 with the mean age range of 42.46 (SD +/- 9.961074).

The inclusion criteria for this study comprises practising psychiatrist with minimum clinical experience of five years. The exclusion criteria include all junior and senior resident of psychiatry.

Materials & Method

Four Speech Language Pathologist collaborated and developed a questionnaire. The questionnaire contain 10 open and close ended questions. The questions were related to the role of SLP in delivering rehabilitative services in psychiatric disorders like schizophrenia.

Content validation was done by six SLP with a minimum experience of three years. Familiarity rating was done using the scale, 'Feedback questionnaire' adopted from Goswami, Shanbal,Samasthitha and Navitha, 2010. Once validation process is completed the newly developed questionnaire was circulated among the psychiatrist.

Procedure

Self-rating questionnaire was administered which contained 10 questions. The questionnaire was circulated through google forms and was sent via mail to 30 psychiatrist in India. Cross-sectional study design was used. Informed consent was obtained from all the participants before the study. The participants were also briefed about the purpose of the study and were assured of anonymity of their responses prior to the study.The data was subjected for statistical analysis.

III. RESULTS AND DISCUSSION

Demographics

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The mean age of respondents was 42.46 (SD +/- 9.961074) with a range of 28 to 70 years. The mean number of years of experience as neuropsychiatries was 15.78571 (SD +/- 10.36503) with range of 2 to 43 years. Total 30 neuropsychiatrists responded to the survey, all the respondents were working in private practice or in corporate hospitals of tier one and tier two cities.

Perception and practice

Q.1. Based on your clinical experience, how prevalent is person with schizophrenia with Speech- Language problems?

Perception of 17 (56.7%) of neuropsychiatrists, that speech and language problems in schizophrenia is often. Only after Crow's theory the relation between language and schizophrenia has been strengthened (Crow, 2008). One of the central language feature seen is abnormal discourse production named as 'thought disorder' by researchers (Bleuler, 1950). Andreason, 1979 has reported that these patients try to fill in speech with irrelevant information like ambiguous verbs with the final end to confound the hearer and produce incoherent discourse (Marini et al., 2008).

Abnormalities in both semantic memory and working memory or executive function have been shown to predict clinical language disturbances [6]. Patients show clear working memory deficits (Lee and Park 2005) and also perform poorly on a various executive function tasks like Wisconsin Card Sort Task and the Stroop, assessed as part of neuropsychological batteries.

Q.2. As a Psychiatrist, to what extent do you agree or disagree that speech and language problems is a detrimental factor to the prognosis in schizophrenia recovery?

Survey results that; maximum about 86.66% neuropsychiatrists believed that speech and language problems are detrimental factor for schizophrenia recovery.

Table 1: Shows the psychiatrist perspective about speech language problems

Agree	Neutral	Disagree
26 (86.66%)	4 (13.33%)	Nil

Schizophrenia affects different cognitive domains like working memory, attention and executive functions which are linked to linguistic and pragmatic deficits[2, 3] thereby serving as a detrimental factor. Imaging and post-mortem studies have depicted the neural basis of language disturbances manifesting volume reduction in the left Superior Temporal Gyrus (STG) which intricate with semantic processing and increased syntactic complexity (Bhati, 2005). Several studies have revealed abnormalities of corpus callosum (Brambilla et al., 2005) which is in coherence to syntax, prosody and transferring auditory information (Friederici et al., 2007). Further, the basal ganglia which is responsible to regulate language processing (Dominey., 2009) have been frequency altered (Glenthoj et al., 2007). Improved pragmatic and discourse skills can certainly help patients in social reintegration and improved quality of life.

Q.3. As a Psychiatrist, which domain of Speech and Language you feel are more affected in Schizophrenia?

The answer mode for this question was multiple selections. Over 19(63.33%) of participants believed that pragmatics or discourse skills are affected in schizophrenia. About 18(60.00%) of participants felt that person with schizophrenia have problem in spontaneous speech. Perception of about 13(43.3%) participant's results that semantics, verbal fluency and speech intelligibility are primary domains affected in person with schizophrenia. Communicative-pragmatic impairment is a core deficit in schizophrenia.

Table 2: Speech and language domains affected in schizophrenia

Pragmatics/ Discourse skills	Spontaneous speech	Verbal fluency	Speech intelligibility	Semantics
19 (63.33%)	18 (60.00%)	13(43.33%)	13(43.33%)	13(43.33%)

Pragmatic dysfunction possibly be more aligned with impaired theory of mind than with compromised executive function suggesting effects in general cognitive impairments on language and communication [7]. Griffin et al., 1994 carried out a study in 35 patients with chronic schizophrenia to assess the pragmatic abilities and found poor pragmatic ability in all the areas added relevancy of content being more problematic thus pragmatic deficits are the key feature in schizophrenia [11]. These pragmatic deficits are reflected in discourse skills precisely in discourse coherence (Ulatowska and Olness, 2007).

With respective to receptive syntax, Morice and Mcnicol (1985) explored how was the comprehension level for complex grammatical structures in adults using modified token test. They found an impairment in comprehension and reduction in the syntactic complexity of spoken language. Syntactic structures were less complex when compared to controls and those patients used reduced relative clauses, less clausal embedding, more syntactic errors and further syntactically and semantically deviant sentences (Fraser et al., 1986; King et al., 1990; Thomas et al., 1990).

Becker did a study with 45 patients with schizophrenia and found alogia was associated with poor verbal working memory and topic maintenance (Becker et al., 2012). Several studies in schizophrenia have reported of poor verbal fluency added it had improved after cognitive rehabilitation (Ojeda et al., 2012). Hoffman found after SLT the severity of auditory hallucinations decreased and language abilities increased (Hoffman and Satel., 1993).

Santos et al., 2014 did a study with 26 male and 24 female schizophrenia patients to assess discourse and prosody and found that the participants showed greater difficulty to repeat the sentences in different intonation pattern and they couldn't express their emotions. Silverstein et al. (1988) found auditory memory deficits in schizophrenia. Grillon et al. (1991) suggested that N400 amplitude abnormalities identified suggested a delay in information processing in adults with schizophrenia.

Q.4. To what extend do you agree or disagree with the statement as: "Pragmatics or other language related issues in schizophrenia can be managed by non-pharmaceutical (Rehabilitation) approach"

There was mixed opinion on the rehabilitative management of pragmatics and speech language problems for person with schizophrenia. About 21(70.00%) of participants agreed that Speech therapy can be management option for pragmatics/ discourse issues in schizophrenia; while 8(26.7%) of participants neither agree nor disagree about rehabilitative management for person with schizophrenia.

Table 3: The perspective about rehabilitative approach

Agree	Neutral	Disagree
21 (70.00%)	8 (26.7%)	1(3.3%)

Studies have stated that non-pharmaceutical approaches benefit schizophrenia to improve speech, language, cognitive and social skills. Few interventions are cognitive remediation, cognitive behavioural therapy, operant conditioning therapy and integrated psychological therapy [4]. Cognitive remediation targets cognitive deficits like attention, executive function, meta cognition and memory with the terminal goal to enhance functional outcomes (McGurk et al., 2013). Cognitive behavioural therapy targets to change behavior and improve balanced thinking (Farmer and Chapman, 2015). Operant conditioning therapy focuses on specified response to modify behavior using explicit and systematic reinforcement (Keutzer, 1967). Integrated psychological therapy direct social skills, social perception, cognitive function and verbal communication (Taksal et al., 2015). Pragmatic deficits compromise the integration of person with schizophrenia and this pragmatic deficit can be evaluated and treated in Speech and Language Therapy (SLT).

Q.5. Which professional is enrolled in assessing and rehabilitating communication disorders?

This is a fairly satisfactory response that Twenty three (76.7%) of participants believed that Speech Language Pathologist enrolled for rehabilitation of communication disorders. About 5(17.6%) of neuropsychiatrist responded for psychologists; whereas 2 (6.6%) of participants believed that communicational disorder get rehabilitated by mental health counselor services.
Speech Language Pathologist provide Speech Language Therapy for oral and written communication impairment which comprises behavioural interventions for several clinical populations in adults (Brady et al., 2012).

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The SLP will be a part of the team during the assessment and management of attention, association and perception. Will mainly focus on the receptive and expressive language abilities to devise targeted plans for intervention. They also work for higher level linguistic functioning such as logical thinking, grasping metaphor, inference thinking, semantic memory and humor. In expressive language functioning SLP will look onto the semantic, syntactic and lexical organization in both the hemispheres and will target the exact level of difficulty the patient is facing and also will work on the speech motor functions, voice, articulation and fluency [10]. Dysphagia might occur when the condition coincides with any neurological issue like dysarthria particularly mainly in elderly, here eating and swallowing problems are handled by the SLP [10]. Therefore SLP has a major role when it comes to communication disorders in schizophrenia.

Q.6. How often do you refer person with schizophrenia to Speech Language Pathologist?

The ideal answer should have been "commonly." It is a matter of concern that a substantial 24 (80.0%) of neuropsychiatrists rarely or occasionally refer person with schizophrenia or other mental disorder with communicational problems to Speech Language Pathologists. About 6 (20.0%) of the participants never refer the person with schizophrenia or other mental disorder with communicational problems to Speech Language Pathologists.

Q.7. In your opinion what could be the reason for not referring Person with Schizophrenia to Speech Language Pathologist (SLP)?

The answer mode for this question was multiple selections. These responses are a sort of wakeup call; results revealed that limited researches are published to justify the SLP management in mental disorders. About 20 of participants believed that there is lack of accessibility for SLP services in tier one and tier two cities. According to results perception of 26.7% neuropsychiatrists was lack of encouraging feedback from SLP; whereas 23.3% of participants are unaware about SLP.

Table 4: Reasons for not referring to SLP

Reason for low/nil referral to SLP	Number of Neuropsychiatrists
Lack of encouraging feedback from SLP	8 (26.7%)
Being unaware about SLP	7 (23.3%)
Being unconvinced about value of SLP	4 (13.3%)
Lack of researches to prove SLP's role in Psychiatric disorders	9 (30.0%)
Lack of availability and access to SLP services	20 (66.7%)

IV. CONCLUSION

It is for the first time that an attempt has been made to glimpse into minds of neuropsychiatrist about the speech language pathologist services in India. This study also aimed to gain perception of rehabilitative management for communication problems in schizophrenia. In this study maximum neuropsychiatrists believed that speech and language problem is detrimental factor for the schizophrenia recovery. Surprisingly only limited number of neuropsychiatrist refers person with schizophrenia to SLP for pragmatic or other communication management. Perception of neuropsychiatrist reveals that there are limited researches published to justify SLP services for schizophrenia. Lack of availability and access to SLP services in India is also concern that could be inferred from this study. 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 collaborative clinical studies and practices by SLP and neuropsychiatrists together.

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CONFLICT OF INTEREST

There are no conflicts of interest

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