

# LANGUAGE IN INDIA

Strength for Today and Bright Hope for Tomorrow

Volume 13 : 1 January 2013

ISSN 1930-2940

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## Do All Individuals with Schizophrenia Have Cluttering?

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### Abstract

Cluttering is a disability in formulating language, causing confused, hurried and slurred diction, due to congenital and constitutional limitation of one's total psychosomatic personality structure. Schizophrenia is a psychotic disorder characterized by hallucinations, delusions, disorganized thoughts/speech, disorganized behavior and apathy. This study aimed to investigate the prevalence and co-existence of Cluttering in patients with Schizophrenia. Twelve participants with a diagnosis of Schizophrenia were subjected to a series of linguistic and extralinguistic tasks. A writing sample was also obtained. The responses of all participants on these tasks, coupled with information from their medical charts, were used to complete the Daly's Checklist.

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The study depicted that majority of the participants had Cluttering – Stuttering features, a significant proportion exhibited Cluttering and only one participant had no dysfluencies. This highlighted the co-existence of Cluttering and Schizophrenia, owing to its neurophysiological similarities. The linguistic impairments seen in patients with Schizophrenia constitute an independent ‘syndrome’ and cannot be attributed to their mental illness.

**Keywords:** Cluttering, Schizophrenia, Daly’s checklist, Stuttering

## **Introduction**

Cluttering is defined as a speech disorder characterized by the individual’s unawareness of his disorder, by a short attention span, by disturbances in perception, articulation and formulation of speech and often by excessive speed of delivery (Weiss, 1964). It is a disorder of the thought processes preparatory to speech, based on a hereditary predisposition. Weiss (1964) describes cluttering as a Central Language Imbalance (CLI) which can be explained as unevenness and a lag in maturation. Some other attempts to explain the apparent ‘organicity’ of this CLI include sub-microscopic lesions in the striatum (Seeman, 1970), lack of maturation of the nervous system (de Hirsch, 1961) and a strong hereditary factor (Weiss, 1964; Luchsinger, 1965).

Cluttering is characterized by obligatory symptoms, namely repetitions, poor concentration and short attention span and unawareness of symptoms i.e. they are usually poor listeners, spontaneous, compulsive, unorganized and unaware of the consequences of an act (Weiss, 1964)

The Facultative symptoms (those which are present but not mandatory) include – Tachylalia or excessive speed (i.e. the person may not be necessarily faster than the normal population curve but speaks ‘relatively too quickly’ for the formulation of utterances), Respiration dysrhythmia or jerky respiratory pattern, Dysfluencies (interjections, prolongations, hesitations and silent gaps), Articulatory errors (deletion, distortions or additions), Lack of musicality and rhythm, resulting

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in monotonous speech and Motor disabilities (superficiality, lack of precision, hyperactivity, impulsiveness and restlessness). Poorly integrated thought processes (i.e. a vague idea of what one is about to say) and Inner language disturbances are also present.

Though, Cluttering and Stuttering are fluency disorders, the two are not the same. Cluttering involves excessive breaks in the normal flow of speech that seem to result from disorganized speech planning, talking too fast or in spurts, or simply being unsure of what one wants to say. By contrast, the person who stutters typically knows exactly what he or she wants to say but is temporarily unable to say it, thus repeating or prolonging sounds or syllables, blocking, and/or using accessory (secondary) devices like eye-blinks, synonyms for difficult words, or abnormal facial postures. However, cluttering and stuttering do co –occur.

Evaluation of Cluttering is similar to any other speech and language evaluation. Using Daly and Burnett’s Checklist for Possible Cluttering can alert the clinician to symptoms that are frequently observed in Cluttering, although we agree with the authors that the instrument should not be used as the sole criterion for a diagnosis of cluttering (St. Louis, Raphael, Myers & Bakker, 2003)

Schizophrenia, is characterized by profound disruption in cognition and emotion, affecting the most fundamental human attributes: language, thought, perception, affect, and sense of self. The array of symptoms, while wide ranging, frequently include psychotic manifestations, such as hearing internal voices or experiencing other sensations not connected to an obvious source (hallucinations) and assigning unusual significance or meaning to normal events or holding fixed false personal beliefs (delusions). No single symptom is definitive for diagnosis; rather, the diagnosis encompasses a pattern of signs and symptoms, in conjunction with impaired occupational or social functioning (DSM-IV).

The symptoms of Schizophrenia are categorized as Positive symptoms which include unusual perceptions (including hallucinations, delusions), disordered thought and movements. Negative symptoms include a loss/decrease in the ability to initiate plans, speak, express emotion, or find

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pleasure in everyday life. Their Cognitive symptoms include deficits in attention, memory, and executive functions that help us to plan and organize our thoughts.

The present study was designed to investigate the co-existence of cluttering in patients with Schizophrenia and to highlight the role of Speech Language Pathologists in assessing and rehabilitating individuals with Schizophrenia.

## **METHOD**

### **Participants**

Twelve participants, between 18 – 50 years of age, with more than 5 years diagnosis of Schizophrenia were recruited from The Richmond Fellowship Society, Bangalore, India (RFS), which is a training centre that provides care and psychosocial rehabilitation for persons with mental health needs. Participants with limited proficiency in spoken English and those with any associated disorders (such as bipolar mood disorders etc.) were excluded from the study.

The medical charts, of all 12 participants, were reviewed and information regarding their medical condition, educational and family history was obtained. Information about their general behaviour was acquired from observation of the participants throughout the study and from an informal conversation conducted with the client and a staff from the RFS.

### **Procedure**

Each participant was subjected to a series of tasks, namely (1) a Reading task – the participants were required to read the given passage, (2) a Monologue – on a topic of their choice, (3) Following simple verbal commands, (4) Logical reasoning tasks –they were given simple queries to solve using logical reasoning, (5) a Story Pulling task – the participants were provided with the beginning and the climax of a story and were expected to complete the body of the story with relevant events. Then, (6) a Writing task – they were asked to write down the dictated passage

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and also a few lines on any topic of their choice (Spontaneous writing sample), (7) a Picture Description activity and (8) a Picture Sequencing task – they were provided with pictures of a story in a jumbled order and were asked to put them in the correct sequence and describe the story. The final task was subjecting each participant to some (9) Mathematical tasks.

The responses of each participant on these tasks, along with information obtained from their medical charts, from observation and from the interview were used to complete the ‘Daly’s Checklist for Identification of Cluttering’ (Daly & Burnett, 1997). Each question on the Checklist was scored as 3 (feature occurring ‘Very much’), 2 (feature occurring ‘Pretty much’), 1 (feature occurring ‘Just a little’) or 0 (feature not occurring at all). Based on the score obtained in the Checklist, the participants were classified as having Cluttering (score of 55 and above), Cluttering – Stuttering (score of 35 - 55) or no dysfluencies (score less than 35).

A further analysis was carried out to identify the ‘Predominant’, ‘Evident’ and ‘Rare’ features, of Cluttering, in the participants diagnosed as having Cluttering and Cluttering - Stuttering. For this purpose, the score of ‘3’ on Daly’s Checklist was denoted as ‘ $\alpha$ ’, score of ‘2’ as ‘ $\beta$ ’ and a score of ‘1’ was denoted as ‘ $\gamma$ ’. Then the following criteria was used to categorize the features as ‘Predominant’, ‘Evident’ and ‘Rare’ –

- (1) If more than 50% of the participants obtained ‘ $\alpha$ ’ or more than 75% of the participants obtained a combination of ‘ $\alpha$ ’ and ‘ $\beta$ ’ for a particular feature, then that feature was termed as being a ‘Predominant’ feature of Cluttering in persons with Schizophrenia.
- (2) If more than 50% of the participants obtained ‘ $\beta$ ’ or more than 75% of the participants obtained a combination of ‘ $\beta$ ’ and ‘ $\gamma$ ’ for a particular feature, then that feature was termed as being an ‘Evident’ feature of Cluttering in persons with Schizophrenia, and lastly
- (3) If 75% of the participants obtained ‘ $\gamma$ ’ for a particular feature, then the feature was termed as being a ‘Rare’ Cluttering feature in persons with Schizophrenia.

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Also, the features of Cluttering were differentiated from those of Schizophrenia. In the Cluttering – Stuttering category, the predominance of either Cluttering or Stuttering features were also highlighted. Statistical analyses were also performed to accomplish the following objectives-

- a. Investigation of inter judge reliability (Pearson correlation)
- b. Internal consistency in the responses of subjects across various questions of the Daly's checklist – (Conbrach's alpha)
- c. Assessment of significance of difference between the Cluttering, Cluttering – Stuttering and no fluency disorder group, on the scores obtained on Daly's checklist (Mann Whitney U test).

## RESULTS

The three investigators qualitatively analyzed the behavioral characteristics and the performance of each participant on the given tasks. Based on this, the Daly's Checklist for Identification of Cluttering was administered and it was found that, of the 12 participants, 50% (n = 6) had Cluttering – Stuttering, 42% (n = 5) had Cluttering and 8% (n = 1) had no dysfluencies.

Judgments performed by the 3 judges revealed a strong positive correlation. ( $r = 0.8$  for first and second judge,  $r = 0.83$  for the second judge and the third judge and  $r = 0.76$  for the third judge and the first judge). Conbrach's alpha value of 0.7 and 0.72 were obtained for the cluttering and cluttering- stuttering group respectively which further confirms the presence of good internal consistency with for the scores obtained by the subjects of each group. Conbrach's alpha could not be performed on the no fluency disorder group since it comprised of only one subject. There also seemed to be a significant difference between the scores obtained by the Cluttering and the Cluttering – Stuttering group ( $p < 0.05$  on Mann Whitney U test)..

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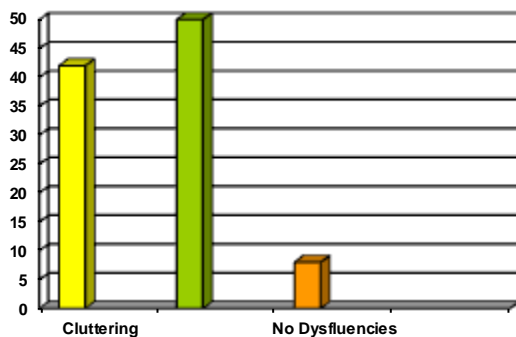


Figure 1: Percentage of participants in Cluttering, Cluttering – Stuttering and No dysfluencies groups.

### *Cluttering Vs Schizophrenia*

Within the Cluttering group, 13 features were found to fall under the ‘Predominant’ category, as can be seen in Figure 2. Out of these 13 ‘Predominant’ features, 54% (n = 7) can be attributed to Cluttering. In the same group, 12 features were identified as being within the ‘Evident’ category, out of which 42% (n = 5) were found to be purely Cluttering features. The remaining 46% (n = 6) of ‘Predominant’ features and 58% (n = 7) of ‘Evident’ features could be attributed to either Cluttering or Schizophrenia. No features in the ‘Rare’ category were identified, in our population, as per our classification

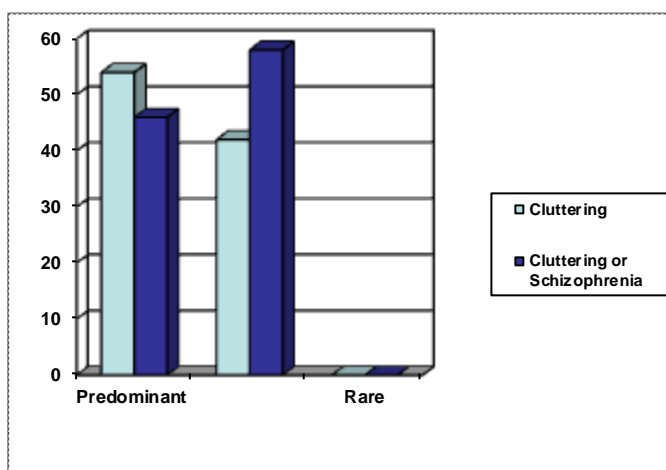


Figure 2:Percentage of features in Cluttering

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Similarly, within the Cluttering – Stuttering group, 10 features were found to fall under the ‘Predominant’ category. Out of these 10 ‘Predominant’ features, 70% (n = 7) can be attributed to Cluttering. In the same group, 12 features were identified as being within the ‘Evident’ category, out of which 67% (n = 8) were found to be purely Cluttering features. Out of the 2 ‘Rare’ features identified, 1 (50%) feature was found to be that of Cluttering and the other could be due to Cluttering or Schizophrenia. Also, the remaining 30% (n = 3) of ‘Predominant’ features and 33% (n = 4) of ‘Evident’ features could be attributed to either Cluttering or Schizophrenia.

### *Cluttering Vs. Stuttering*

Within this group, of the 10 ‘Predominant’, 12 ‘Evident’ and 2 ‘Rare’ features, 9, 8 and 2 features, respectively, were indicative of Cluttering rather than Stuttering.

## **DISCUSSION**

The results indicated that majority of the participants exhibited Cluttering – Stuttering features and a significant number showed features of only Cluttering. Further analysis of the Cluttering – Stuttering group, showed a dominance of Cluttering features rather than Stuttering. In the Cluttering group, the ‘Predominant’ features of Cluttering were characterized by little/no tension observed during dysfluencies, inappropriate/overuse of pronoun reference, improper linguistic structure, lack of awareness of self and/or communication disorder(s), poor recognition /acknowledgement of non verbal signals and lack of effective self monitoring. The ‘Evident’ features included presence of interjections, Tachylalia or speaking in spurts, speech better under pressure (during periods of heightened attention), initial loud voice/trails off to a murmur and poor rhythm or musical ability (may dislike singing). There were no ‘Rare’ features identified in this group according to our selection criteria.

In the Cluttering- Stuttering group, the ‘Predominant’ features were similar to those identified in the Cluttering group. Most of the ‘Evident’ features in this group resemble those seen in the Cluttering group. In addition, inappropriate turn taking was also observed. Improper linguistic

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structure was the only ‘Rare’ feature seen in this group. The remaining features in both Cluttering and Cluttering – Stuttering groups, could be attributed to either Cluttering or Schizophrenia.

Several studies have explored the neurophysiological factors involved in Schizophrenia and Cluttering, respectively. PET studies, in patients with Schizophrenia, revealed reduced activation in the frontal areas of the brain and abnormal dopamine activity in the striatum (Meyer-Lindenberg, Miletich, Kohn, 2002). Similar findings were also seen in patients with Cluttering, i.e. lesions in the striatum (Seeman, 1970) and lack of maturation of the nervous system (de Hirsch, 1961) were identified. A study by Nicolson et al., (2000), stated that the pathophysiology of Schizophrenia involves abnormal development of language related brain regions. These neurophysiological similarities between Schizophrenia and Cluttering support the possibility of their co-existence, thus supporting the results of our study.

Speech-Language difficulties are a characteristic finding in patients diagnosed with Schizophrenia during childhood and adolescence. However, these impairments are also present at high rates in those diagnosed with Schizophrenia during adulthood (Nicolson et. al, 2000), as is evident in our participants. They also found that adults with Schizophrenia have impairments particularly in pragmatics, prosody, auditory processing and abstract language functions. Lott, Guggenbuhl, Schneeberger, Pulver, & Stassen (2002) concluded a complete lack of association between linguistic impairments and the symptoms exhibited by this psychiatric population. This lack of association led to the inference that the linguistic deviance seen in psychiatric patients represent an ‘independent syndrome complex’ and cannot be attributed to their mental illness. This evidence supports and confirms our finding that speech and language difficulties seen in our participants are not secondary to their mental illness (Schizophrenia), but are exclusively a manifestation of impairments seen in ‘Cluttering’.

The present study has attempted to highlight the co-existence of Cluttering and Schizophrenia, thus emphasizing on the need for Speech-Language Pathologists to be an integral part of the team approach involved in the assessment and management of Schizophrenia patients. Therefore, Language in India [www.languageinindia.com](http://www.languageinindia.com)

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it is necessary for psychiatrists to refer patients with Schizophrenia for a detailed speech-language evaluation and thereafter therapeutic intervention. Since, Cluttering is characterized by lack of self monitoring and self awareness, it tends to go unnoticed. The awareness regarding the identification of Cluttering has increased tremendously among Speech Language Pathologists in the recent years. However, this awareness needs to increase further and particularly among other medical professionals. The present study has taken a step towards achieving this goal.

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