Prevalence Of Articulation Disorder In School Going Children Between Ages Of 8 To 12 Years

Rabia A\(^1\), Sikander GK\(^2\), Manzoor MT\(^3\), Ibrahim M\(^4\), Sadia T\(^5\), Safa P\(^6\)

Abstract

**Background:** Communication disorders are potentially disabling conditions with widespread and lifelong implication. One of the most common communication disorders of childhood is articulation disorder that impacts on academic achievement in the school and may affect social and emotional development in the adulthood.

**Objective:** The objective of this study was to determine the prevalence of articulation disorder in school going children between ages of 8-12 years.

**Material & Methods:** The cross sectional survey was conducted in which data of 1000 school going children between ages of 8 -12 years was collected from Army Public School(APS) Garrison Junior School Lahore Cantt and Govt. Middle School Sikandria Colony, Band Road Lahore. First of all, personnel information about each student such as name, age, No. of sibling, date of birth was collected then student were evaluated through articulation card in articulation checklist for articulation disorder.

**Result:** The prevalence of articulation disorder was 17.6% and most prevalent type of articulation error was substitution.

**Conclusion:** This prevalence statistics was higher than others studies that using parent or teacher report that may be due to different methodological techniques used by researcher for assessing the articulation disorder. So, some preventative measures should have to be taken to stop this widespread problem and speech disorders workshop should be conducted to aware the teachers, parents and students.

**Keywords:** Speech disorders; articulation disorder; phonological disorder.

**Introduction:**

Articulation refers to totality of motor process involved in planning and execution of sequences of overlapping gestures that result in speech.[1] Articulatory system is comprises of articulators, on the basis of their place and manner articulators are divided in two categories, active and passive articulators, active articulator moveable part of vocal tract in the production of particular speech sounds. Active articulators are also called mobile articulators includes Upper lip, tongue, mandible. Passive articulators are the parts of vocal tract that remain fixed during speech production they are also called fixed or immobile articulators. Passive articulators include upper lip, alveolar ridge, and roof of mouth, upper teeth, uvula and back pharyngeal wall[2].

Articulation disorder can be defined as “The inability to correctly produce speech sounds (phonemes) because of imprecise placement, timing, pressure,
speed, or flow of movement of the lips, tongue or throat. With an articulation disorder, there is a difficulty producing and using age-appropriate sounds.” [3] The error child make during the production of speech sound is called articulation error. There are four types of articulation errors namely Omission, which occurs when a particular sound in a word in particular position is deleted e.g. “ook” for “book” here /b/ sound is deleted in the initial position. Substitution, in which particular phoneme in a word is replaced by another sound e.g. “cup” become “tup” here /k/ sound is replaced by /t/ sound. Distortion, in which intended sound is pronounced like an intended speech sound, but it is Misarticulate Addition, in which extra sound is added in a word e.g “black” become “baalack”. Here /a/ sound is extra added in a word. [4] Articulation disorder is caused by both organic and inorganic factors. Organic factors include Tongue tie, Dental malocclusion, Cleft lip, Cleft palate etc. while inorganic factors includes psychological influence, faulty learning etc. [5]

Clinical features of articulation disorder include delay babbling, use of vowels, unintelligible speech, feeding problems and slow and slurred speech [6].

Articulation disorders are diagnosed through formal and informal assessment procedures. In informal assessment clinician do not use any test or procedure for evaluating the client. But in the formal assessment procedure tests are used and these tests includes Arizona Articulation Proficiency Scale(Arizona-3), Fisher Logemann Test Of Articulation Competence, Goldman-Fristoe Test Of Articulation 2, Photo Test Of Articulation(PAT-3). These test assess the sound in initial, medial and final position. [7] There are different treatment approaches that are used to treat the articulation disorder includes phonetic placement approach, palatometric instrument approach, wedge approach, and traditional articulation approach. Among these approaches TAT (Traditional articulation therapy) or traditional articulation approach is more common to treat the articulation disorder. [8]

The objective of this study was to find out the prevalence of articulation disorder in Pakistan according to their religious and cultural values.

Material and methods:
The cross sectional survey was conducted at “APS Garrison Junior School Lahore cantt and Govt. Middle School Sikandria Colony Band Road Lahore”. Total 1000 students were included in this study. School going students between the ages of 8 to 12 years were included in this study while Special students between the ages of 8 to 12 years, School goings students above the age of 12 year and School going student under the age of 8 year were excluded from this study.

The student Performa was designed as a data collection tool in order to collect the personal information about student and to determine the presence and absence of articulation disorder. Firstly, the personal information’s about each student such as name, class, number of siblings etc. were collected through Performa then all students were evaluated for articulation disorder through articulation cards and articulation checklist and help was also taken by class teacher in the identification of suspected child. Direct method was used in the present investigation.

The data was entered in SPSS software version-17 (SPSS Inc, Chicago) for statistical analysis.
Results:

Table I: Gender distribution

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>524</td>
<td>52.4</td>
</tr>
<tr>
<td>Female</td>
<td>476</td>
<td>47.6</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The above table mention that total 1000 students were included in this study in which 524(52.4%) were male while 476(47.6%) were females.

Table II showed the percentage of articulation disorders out of 1000 participant 176(17.6%) have problem with articulation. The remaining participants 824(82.4%) do not have any kind of articulation disorders.

Table II: Articulation disorders

<table>
<thead>
<tr>
<th>Articulation disorder</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>824</td>
<td>82.4 %</td>
</tr>
<tr>
<td>Yes</td>
<td>176</td>
<td>17.6 %</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table III: Type of articulation error:

<table>
<thead>
<tr>
<th>Type of articulation error</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitution</td>
<td>162</td>
<td>92.04%</td>
</tr>
<tr>
<td>Omission</td>
<td>11</td>
<td>6.254%</td>
</tr>
<tr>
<td>Distortion</td>
<td>3</td>
<td>1.7 %</td>
</tr>
<tr>
<td>Total</td>
<td>176</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The results showed in table III most common articulation disorder among school children is substitution out of 176 children 162(92.04%). 11(6.25%) Out of 176 children, having omission and remaining 3(1.7%) children having distortion.

Discussion

The aim of this study was to determine the prevalence of articulation disorder in primary school student. The determination of prevalence rate of any disease is very important because by knowing the prevalence rate we plan the service delivery and discovers many techniques and alternative to resolve the problem.

The current study provides a data on the prevalence of articulation disorder in population of Lahore. As the articulation disorder is most prevalent common disorder of school going children so researcher want to determine its prevalence in order to improve the quality of services. Most recently A.Sadolahi, F.Kasbi, M.S.Genabi, M.O. Zanjani, Z. Eftakhari and R.Ghorbani have conduct research at semnan-2004 and reported the prevalence of articulation disorder was 8.75 % in the present study the prevalence of articulation disorder was 17.6% that is higher. Another study conducted in Australia shows 1.06 % articulations in children from kindergarten to grade six. In this study articulation disorder found in 176(17.6%) school children. It is also considered that in Lahore’s culture people cannot pronounce “R” properly. They replace “r” with “rh” that why substitution was most prevalent articulation disorder found in school children.

Research shows 13.1 % in sedighah Akhavan Karbasi, Razieh Fallah, and Motaharah studies that was conducted at Yazd-Iran. This discrepancy may be due to different age range ,source of data collection and due to different cultural presentation and socioeconomic status. But this prevalence rate is closely related to the study of Sedighah Akhavan Karbasi, Razieh Fallah and Motaharah Gol estan who has conduct the research on 7881 primary school students in Yazd-Iran and reported that the prevalence rate of articulation disorder was reported the 13.8%. However similar result were found in the study conducted by Campbell et al (2003) reported a prevalence of articulation disorder 15.6% in 3-year old children. Results of study shows that
articulation disorder was more prevalent in boys than in girls. \[10\].

**Conclusion and Recommendations:**

It was concluded that articulation disorder are common in school children of APS Garrison Junior School Lahore Cantt and Govt. Middle School Sikandria Colony Band Road Lahore. It was also found students were showing different types of articulation errors, most common error was Substitution. To aware the parents and teachers about this disorder such surveys should be conducted in different school settings, because early identification and early intervention lead to good prognosis.

**Acknowledgement:**

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**References:**

11. Carla J. Johnson PD, Department of Speech-Language Pathology, University of Toronto. Prevalence of Speech and Language Disorders