Critical Review:

Auditory-Perceptual Ratings of Dysarthric Speech Samples

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agreement of listener auditory-perceptual ratings of the speech of patients diagnosed with dysarthria. The studies were required to use auditory-perceptual analysis alone to identify the type of dysarthria or to rate the deviant speech dimensions of dysarthria for inclusion in this review. In addition, the listeners were required to be SLPs or SLP students. No other limits were set on the demographics or linguistic profile of the research participants (speakers and listeners) or outcome measures.

Data Collection

Results of the literature search yielded the following types of articles congruent with the aforementioned selection criteria: nonrandomized between groups design (1), nonrandomized mixed design (2), single group design (1), and within groups design (3).

Results

In a pivotal study in the area of dysarthria, Darley, Aronson, & Brown (1969) conducted research to determine the speech patterns that are characteristic of seven neurological groups. In addition, they examined the reliability of expert SLPs auditory-perceptual ratings of the dimensions of dysarthric speech. In their within groups research study, three expert judges (the authors) rated various dysarthric speech samples on a series of dimensions, one dimension at a time. They used a 7-pt severity rating scale, where 1 represented normal and 7 represented a very severe deviation from normal. The speech samples consisted of a standardized passage reading and, on some occasions, conversational speech. In very rare cases, they used sentences repeated by the patient after the examiner. The judges were aware of the neurologic type of each speech sample and rated only the dimensions considered relevant to that neurologic type. To determine intraobserver reliability, at least 30 patients were rated twice by the judges on all 38 dimensions.

In terms of intraobserver reliability, the overall average was 85%. For interobserver reliability, comparisons were made between the ratings of the three judges on 150 patients on 37 dimensions (total of 5550 sets of three ratings). The judges agreed on 84% of the samples as to whether they were normal or not. The judges agreed perfectly or within one scale value on 84% of the sets. This level of reliability was considered to be generally satisfactory.

This study was successful in demonstrating that expert SLPs were able to reliably use auditory-perceptual analysis to rate dimensions of dysarthric speech. A larger sample size of raters would have increased the generalizability of this study. It may seem a limitation that the raters were not blind to the neurologic conditions of the patients; however, given that the 38 perceptual dimensions had not yet been identified or attributed to a specific dysarthria type, the raters were blind in a different sense. Another point to note is that it seems the authors calculated agreement rather than reliability, although they use the term reliability.

In an attempt to replicate the findings of Darley, Aronson, & Brown, Zyski & Weisiger (1987) conducted a nonrandomized between-groups study to determine whether different groups of SLPs could use auditory-perceptual analysis to identify types of dysarthria. The speech samples were taken from the work of Darley et al. and contained a reading passage and syllable repetition. The listeners were split into three groups. Group 1 consisted of 17 SLPs with a minimum of five years experience with dysarthria. For this group, the number of dimensions rated was reduced from 38 to 16 by using only the dimensions with a mean scale value of 2.0 (as determined by Darley, Aronson, & Brown) and using only the dimensions that occurred in no more than four dysarthria types. This was to ensure greater differentiating power. Each listener reviewed the descriptions of each dimension and then listened to the samples. They were asked to record a check mark where they perceived the dimension as present. No limits were made on how many dimensions could be checked off in each sample. The responses were analyzed and the greatest number of dimensions checked off for each sample determined the dysarthria type, which was scored as accurate or inaccurate. The results established that this group identified only 19% of the samples correctly.

Listener Group 2 consisted of 11 SLPs with a minimum of five years of experience with dysarthria. They listened to the same speech samples in the same way as Listener Group 1, but the method of rating differed for this group. They were asked to list a

results for this group showed that they were able to identify 56% of the samples correctly.

Although this study did not include measures of reliability or agreement, which is a limitation, it was included in this review because it investigated S auditory-perceptual ratings of dysarthric speech and

agreed with one another for speaker and feature was calculated. This provided 80,370 pair

consisted of a standard reading passage and free speech. There were three groups of raters. Group 1 was eight neurologists, Group 2 consisted of eight neurology residents, and Group 3 included eight speech therapists. Each group rated the samples three times to determine whether clinical information would improve the score of each rater: the first time, they rated the samples and checked off the type of dysarthria, the second time, they were given some clinical information on each patient and rated the samples again, and the third time they rated the samples a week later.

Since this critical review is only interested in SLPs as raters, only their results will be reported. Group 3 (the SLPs) correctly identified 37% of the speech samples correctly in the first session, 31% in the second session, and 48% in the third session.