

PERCEPTION OF SPEECH DISORDERS: HOW TRAINED LISTENERS CONSIDER THE DEGREE OF INTELLIGIBILITY AND THE DEGREE OF SEVERITY.

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In clinical practice of speech disorders, trained listeners are often used as judges for scaling procedures in perceptual assessment of speech signal. The aim of this paper is to study how a group of judges as an expert jury performs a task of severity judgment compared with a task of intelligibility judgment

Material and methods: During an off line experiment, 43 stimuli of speakers (31 patients treated for an oral or pharyngeal cancer and 12 control) were presented to 6 trained listeners (5 logopedists and 1 phoniatrician). Each sound file was associated with a table allowing scoring each stimuli heard by a simple click on it in terms of voice, resonance, prosody and phonemic qualities (Range 0 to 3, 0 for normal, 3 for the most deviant). With an analogical scale (range on 0 to 10) the judges were asked to score the severity and the deterioration of intelligibility (0 for the most severe" or "the least intelligible", 0 for normal). Statistical analysis describes the scores of intelligibility and severity and the behavior of each judge using factor analysis.

Results: The mean scores of severity and deterioration of intelligibility are 6.76 (+/- 2.57) and 8 (+/- 2.41) respectively with a high correlation ($r=0.86$). The same tendency is observed for the whole judges: the degree of intelligibility is always judged as better than severity and weak correlations are localized in the middle of the range. The contribution of each speech parameters is respectively for the degree of severity and deterioration of intelligibility: 0.49/0.49 for voice, 0.69/0.66 for resonance, 0.64/0.68 for prosody and 0.84/0.82 for phonemic quality. A difference in the distribution of the scores is demonstrated for 4 judges and a similarity for 2 judges. These 2 judges keep the same specific way to analyze the stimuli, based on resonance and phonemic qualities.

Conclusion: In contrast to earlier reports including any kind of speech disorders, there is a clear overestimation of intelligibility compared to the degree of severity in this population treated for oral and pharyngeal cancers. Several perceptual behaviors are identified between the 6 trained judges despite a sufficient agreement.

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