DEVELOPMENT AND STANDARDIZATION OF ARABIC SPEECH INTELLIGIBILITY RATING (SIR) TEST

A thesis

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Audiology

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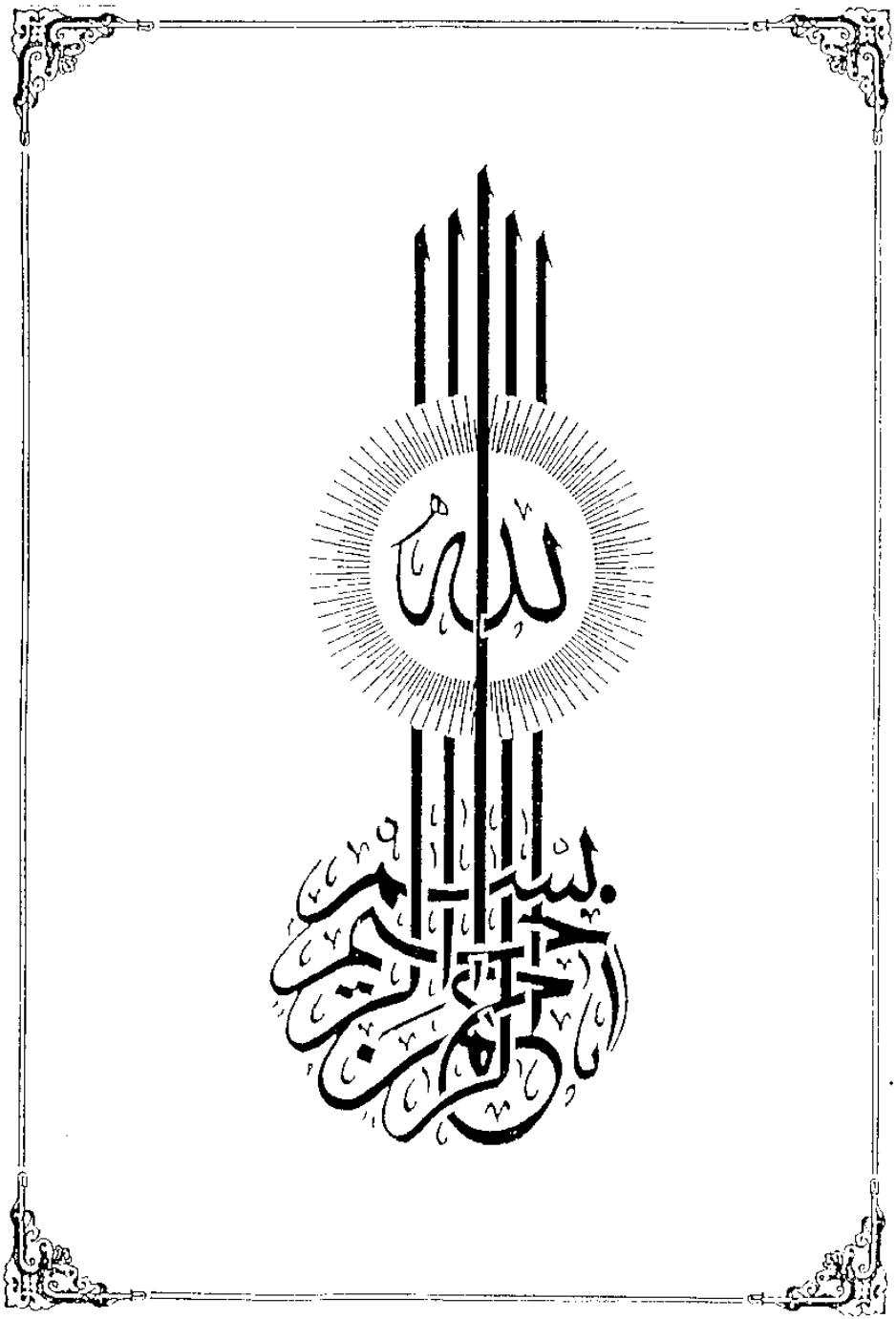
بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

صدق الله العظيم



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Introduction and Rationale

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The problem of appropriate selection of a hearing aid that accomplishes satisfaction to the hearing aid user was always a matter of debate. Naturally, the primary concern of the hearing aid wearer is clear and intelligible speech.

Unfortunately, most of the methods concerned with hearing evaluation assess the hearing aid as pure-tones processor. This, of course does not indicate how these patients perform in every day listening situations.

Since human ears were originally created to discriminate speech rather than pure-tones, the use of speech signals in hearing aid evaluation provides a clue to the problem of satisfying a hearing aid user.

Several methods have been proposed to assess the performance of patients with sensorineural hearing losses using materials other than pure-tones. ***Henry (1980)*** recommended that performance of hearing aids should be assessed in a background of noise as a reasonable attempt to duplicate as closely as possible the competing background noise in which most listening situations occur. ***Studebaker et al. (1982)*** studied the effectiveness of paired comparison judgment of relative intelligibility of continuous discourse in noise in hearing aid selection.

Cox (1984) introduced an intelligibility rating procedure and applied it to normal hearing listeners. The **Speech Intelligibility Rating (SIR)** test,

was latter applied to hearing impaired subjects using hearing aids *(Cox, 1989).* After listening to a short passage of connected speech, subjects were instructed to generate rating proportional to the passage-intelligibility using an equal-appearing interval scale from 0 to 10. This is done in the presence of background babble noise adjusted to certain signal/babble (S/B) ratio on a setup passage.

Surr (1991) used the SIR test to compare between three hearing aids in patients with high frequency hearing loss. Hearing aid fittings differed primarily in mid-frequency gain. The SIR test results did not show differences among the frequency responses in the majority of cases. On the other hand, ***McDaniel (1992)*** evaluated the SIR test for hearing aids comparisons. Results suggested that SIR test was capable of differentiating among slightly dissimilar hearing aids and that hearing aids rankings from SIR test results were reliable. ***Soliman et al. (1988)*** developed the Arabic speech intelligibility in noise (SPIN) test and recommended its use in hearing aids evaluation. This test, however, does not take into consideration the patient's preference while the SIR test provides such an advantage.

Accordingly, this study was undertaken to address the issues related to patient's preference through the development of an Arabic version of the SIR test.

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Aims of the Work

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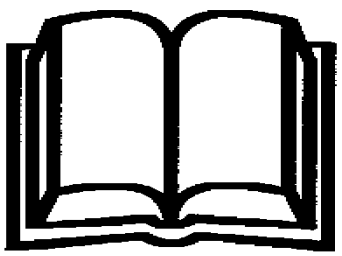
1. Development and standardization of the Arabic test material of SIR test for normal hearing Arabic-speaking subjects.

2. To study the effects of sensorineural hearing loss -if any- on the developed Arabic SIR test.



Review of Literature