

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

**A thesis  
submitted in partial fulfillment for the Master Degree in  
Audiology**

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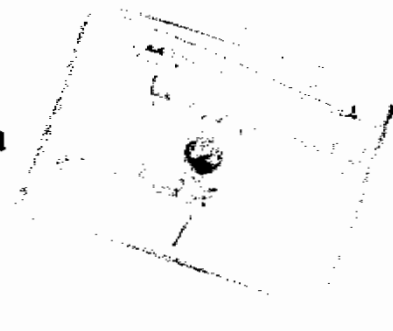
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1995**

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## *Aknowledgment*

*I would like to express my deepest gratitude to **Professor Dr. Salah Soliman**, professor and leader of audiology, ENT department, Ain Shams University. He provided me with unlimited support, invaluable advice and continuous encouragement.*

*No word can express my thanks to **Dr. Iman Sadek**, for teaching me how to think in a scientific manner. Without her help and guidance, this work could not be completed.*

*I am truly appreciative of the precious help given to me by **Professor Dr. Mohammed Hossein**, faculty of agriculture in performing the statistical analysis of this work.*

*Sincere thanks are due to **Dr. Nagwa Hazaa** and **Dr. Wafaa Elkholy** for their active support and fruitful cooperation.*

*My deepest gratitude is to my family whose love, encouragement and care helped me a great deal throughout this work.*

*I am also thankful for the friendship of all members of the Audiology unit, Ain Shams University.*

*One person remains, my wife **Dr. Noha Abdel-Hakam** whose care, patience and sincere help have always been the light amid darkness.*



## *Introduction and Rationale*

## Introduction and Rationale

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.

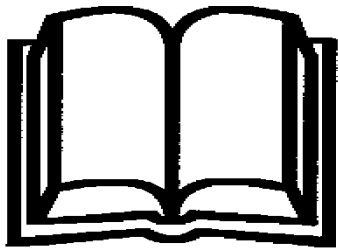
Accordingly, this study was undertaken to address the issues related to patient's preference through the development of an Arabic version of the SIR test.

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*Aims of the Work*

## **Aims of the work**

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*