Enhancement of Speech Emotion Recogntion

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(1) Investigation of emotion recognition with audio only and bimodal integration in NH and HI populations.(2) Investigate the individual variations in emotion recognition, and in cognitive compensatory mechanisms, to produce knowledge that can...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON46825

Source
ToetsingOnline

Brief title
ENRICH-EMO

Condition

- Other condition

Synonym
hearing disorder, hearing impairment

Health condition

hearing impairment

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: European Commission under the Marie Sk□odowskaCurie programme funding ENRICH European Training Network of PhD position to Julie Kirwan

Intervention

Keyword: audiovisual integration, emotion perception, hearing rehabilitation, speech perception

Outcome measures

Primary outcome

The study parameters will be profiles that specify emotion perception

parameters for the groups NH and HI, and profiles of individual HI listeners.

These profiles will be based on a combination of behavioural measures (reaction

times, accuracy, and psychoacoustic sensitivities) and objective measures

(pupillometry, EEG and eye-tracking) to assess listening effort and cognitive

processing.

Secondary outcome

Not applicable

Study description

Background summary

Individuals with hearing loss encounter difficulties in speech perception in noisy listening environments. Similarly, the inability to hear the acoustic speech cues likely results in a decreased ability to identify emotions correctly. Nonverbal information such as emotion recognition is essential for human communication, we constantly need to decipher emotional cues in everyday life. While emotion recognition for normal hearing (NH) listeners has previously been explored, there is a lack of research regarding emotion perception in individuals with hearing loss. This project aims to complete the

gap of knowledge involving emotion recognition in hearing impaired (HI) adults, so that effective hearing rehabilitation programs can be developed for this population.

In everyday life, we rely not only on auditory cues, our visual perception compensates for deteriorated auditory information (such as lip-reading, gestures). Therefore, one sensory mode may compensate for the other in enhancing the individuals* understanding of speech and also their recognition of emotion. The goal of this project is to examine emotion recognition by HI listeners in an ecologically valid manner, i.e. by investigating emotion recognition in both sensory modes of auditory and visual, and through audio-visual integration. Furthermore, this project will accommodate individual differences in emotion perception. These individual differences are already evident in NH populations, and it is expected for this variation to increase in HI listeners, due to the additional factors of aetiology, cognitive skills, aging, and similar.

Study objective

(1) Investigation of emotion recognition with audio only and bimodal integration in NH and HI populations.
(2) Investigate the individual variations in emotion recognition, and in cognitive compensatory mechanisms, to produce knowledge that can enable new individualised methods for hearing rehabilitation.
(3) Develop a training paradigm, for example involving avatars, musical training or other methods, to aid hearing rehabilitation.

Study design

This is an observational study that will include non-invasive behavioural and physiological testing, the entire duration of this study will be two years for all the stages. The study design will consist of three stages that will accommodate the objective of this research, being an individual-based strategy to hearing rehabilitation in emotion recognition. Due to the fact that the literature on this topic is limited for our specific requirements, a pilot experiment will be utilised for each stage of this research. Since the exact procedure, stimuli and study parameters required are unknown for this specific context, it is necessary to include these pilots so that the most effective method can be refined to accurately conduct this research and so that any unnecessary burden on the participants (especially for HI and older individuals) is avoided for the experiments. There are stimulus databases available in the laboratory, but depending on the outcome of the pilot experiments, new recordings may be developed.

Study burden and risks

There is no known risk or benefit for participating in this experiment.
Sufficient breaks will be given to the participant.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Normal Hearing controls:
In order to be eligible to participate in this study, a subject must meet all of the following criteria:
- Age > 18 years, but younger than 75 years
- Healthy subjects
- Audiometry with hearing level * 20 db HL puretone thresholds from 250 to 8000 Hz bilaterally (in both ears)
- Native Dutch speaker (Dutch was the only language acquired within the first three years of

their life);Hearing Impaired subjects:
In order to be eligible to participate in this study, a subject must meet all of the following criteria:
- Age > 18 years, but younger than 75 years
- Healthy subjects, other than hearing disorders
- Native Dutch speaker (Dutch was the only language acquired within the first three years of their life)

Exclusion criteria

A potential subject who meets any of the following criteria will be excluded from participation in this study:
- Known linguistic or speech disorders (such as dyslexia)
- Non-native dutch speaker
- All subjects who appear not in good health

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	30-05-2018
Enrollment:	195
Type:	Actual

Ethics review

Approved WMO

Date:	31-01-2018

Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL62553.042.17