The potential of synthetic voices to facilitate communication and adaptation of patient with laryngectomy

Matu S.¹*, Șoflău R.¹, David D.¹, Chirilă M.², Țiple C.², Dinescu V.², Mureșan R.³, Giurgiu M.⁴, Stan A.⁴

¹Babeș-Bolyai University, Cluj-Napoca
²Iuliu Hațieganu University of Medicine and Pharmacy, Cluj-Napoca
³Emergency County Hospital, Cluj-Napoca
⁴Technical University, Cluj-Napoca

Scientific context:

- The loss of natural verbal communication is a major problem with dramatic implications for the individual’s life.
- Synthetic voices generated through technological means are considered a possible solution for patients that underwent total laryngectomy. Although previous studies have investigated how synthetic voices are perceived by the general population, it is still unclear whether these voices are perceived differently than those generated through standards methods of vocal rehabilitation.

Objectives:

- Given the impact that these perceptions might have on the quality of the social interactions of these patients, we aimed to analyze comparatively the perceptions of healthy people upon synthetic and prostheses generated speech.
- We aimed to test the impact of psycho-social factors that could affect the perception of voices (i.e., context of the interaction and the emotional valence of the message being communicated).

Methods:

- Participants rated: the naturalness of the voice and expressed their attitude toward future interactions with such a voice.

<table>
<thead>
<tr>
<th>Familiarity</th>
<th>Naturalness</th>
<th>Attitude toward future interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiar</td>
<td>Positive</td>
<td>Neutral</td>
</tr>
<tr>
<td>Unfamiliar</td>
<td>Negative</td>
<td>Neutral</td>
</tr>
<tr>
<td>Medical</td>
<td>Neutral</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Results:

Discussion and conclusion:

- The perception of synthetic voices as compared with classical methods of voice assistance, depends on emotional content and the nature of the relationship between the two interaction partners.