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| **Appendix 2.** Statistical results of generalized linear models with binomial response |
| **Predictor variables** | **Categories** | **N (40)** | **OR (95% confidence interval)** | **P-value** |
| **Training in normal voice** |
| Level of education | Undergraduate degree | 6 | Reference |
| Diploma level | 4 | 0.53 (0.02, 17.17) | 0.689 |
| Specialization  | 18 | 0.97 (0.03, 16.3) | 0.983 |
| Master’s degree | 4 | 1.44 (0.05, 44-89) | 0.816 |
| Doctorate degree | 1 | NA | NA |
| Year of experience | NA | 40 | 1.05 (0.93, 1.23) | 0.436 |
| **Training in pathological voice** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of categorical ratings** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of equal-appearing intervals** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of visual analog scales** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of direct magnitude estimations** |
| Training in normal voice | No | 5 | Reference |
| Yes | 35 | 1.16 (0.12, 12) | 0.890 |
| Training in pathological voice | No | 3 | Reference |
| Yes | 37 | 1.74 (0.11, 48.46) | 0.697 |
| **Use of paired comparisons** |
| Training in normal voice | No | 5 | Reference |
| Yes | 35 | 0.56 (0.06, 6.21) | 0.607 |
| Training in pathological voice | No | 3 | Reference |
| Yes | 37 | 1.2 (0.07, 36.63) | 0.902 |
| **Spontaneous speech task training** |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 4.31 (0.65, 43.66) | 0.159 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 1.34 (0.14, 10.32) | 0.784 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 0.81 (0.15, 4.49) | 0.805 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 1.25 (0.24, 6.81) | 0.787 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 0.22 (0.03, 1.29) | 0.103 |
| **Sentence reading task training** |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 1.80 (0.37, 9.38) | 0.468 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 1.67 (0.22, 13.57) | 0.616 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 0.46 (0.09, 1.99) | 0.319 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 3.84 (0.95, 17.96) | 0.068 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 2.19 (0.41, 13.61) | 0.369 |
| **Paragraph reading task training** |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 0.18 (0.02, 1.10) | 0.0889 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 3.41 (0.44, 43.63) | 0.275 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 2.01 (0.41, 9.95) | 0.381 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 2.22 (0.48, 10.40) | 0.299 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 4.84 (0.80, 41.67) | 0.104 |
| **Sustained vowels task training** |
| The model does not fit properly due to the number of responses in each category. |
| **Singing task training** |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 1.68 (0.31, 0.96) | 0.545 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 2.48 (0.19, 81.08) | 0.533 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 2.86 (0.6, 15.64) | 0.198 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 0.34 (0.04, 1.95) | 0.264 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 1.67 (0.23, 15.24) | 0.618 |
| **Synthesized voices task training** |
| The model does not fit properly due to the number of responses in each category. |
| **Vowel /a/ training**  |
| The model does not fit properly due to the number of responses in each category. |
| **Vowel /e/ training**  |
| The model does not fit properly due to the number of responses in each category. |
| **Vowel /i/ training**  |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 1.54 (0.29, 1.80) | 0.6126 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 0.96 (0.13, 7.56) | 0.971 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 6.71 (1.59, 33.79) | 0.013 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 2.11 (0.48, 9.95) | 0.325 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 1.13 (0.19, 6.71) | 0.893 |
| **Vowel /o/ training**  |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 3.95 (0.0, 1.54) | 0.344 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 0.08 (0.27, 129.04) | 0.098 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 9.45 (0.0, 1.29) | 0.099 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 5.92 (0.65, 149.21) | 0.165 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 0.09 (0.0, 1.18) | 0.124 |
| **Vowel /u/ training**  |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 4.63 (0.64, 47.69) | 0.149 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | 0.1 (0.01, 1.01) | 0.064 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 1.2 (0.2, 7.41) | 0.842 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 4.35 (0.81, 30.66) | 0.103 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 0.56 (0.07, 3.5) | 0.551 |
| **Performance of auditory perceptual evaluation** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of categorical ratings** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of equal-appearing intervals** |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 0.92 (0.06, 23.69) | 0.950 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | NA | 0.013 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 0.73 (0.07, 6.11) | 0.773 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 0.21 (0.01, 1.87) | 0.204 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | 3.67 (0.37, 88.1) | 0.313 |
| **Use of visual analog scales** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of direct magnitude estimations** |
| The model does not fit properly due to the number of responses in each category. |
| **Use of paired comparisons** |
| Categorical ratings | No | 25 | Reference |
| Yes | 15 | 0.43 (0.02, 4.61) | 0.52 |
| Equal appearing interval | No | 7 | Reference |
| Yes | 33 | NA | 0.464 |
| Visual analog scale | No | 22 | Reference |
| Yes | 18 | 1.27 (0.13, 10.56) | 0.82 |
| Direct magnitude estimation | No | 21 | Reference |
| Yes | 19 | 2.70 (0.25, 32.98) | 0.395 |
| Paired comparisons | No | 28 | Reference |
| Yes | 12 | NA | 0.013 |
| **No scale used** |
| The model does not fit properly due to the number of responses in each category. |
| **Spontaneous speech task used** |
| The model does not fit properly due to the number of responses in each category. |
| **Paragraph reading task used** |
| Spontaneous speech | No | 10 | Reference |
| Yes | 30 | 2.35 (0.4, 15.7) | 0.349 |
| Sentence reading | No | 19 | Reference |
| Yes | 21 | 3.07 (0.53, 20.56) | 0.218 |
| Paragraph reading | No | 25 | Reference |
| Yes | 15 | 2.86 (0.58, 15.54) | 0.199 |
| Sustained vowels | No | 2 | Reference |
| Yes | 38 | 1.65 (0.04, 66.99) | 0.771 |
| Singing | No | 29 | Reference |
| Yes | 11 | 0.65 (0.09, 4.13) | 0.653 |
| Synthesized voices | No | 38 | Reference |
| Yes | 2 | NA | 0.995 |
| **Sustained vowels task used** |
| The model does not fit properly due to the number of responses in each category. |
| **Singing task used** |
| Spontaneous speech | No | 10 | Reference |
| Yes | 30 | 0.53 (0.05, 5.25) | 0.566 |
| Sentence reading | No | 19 | Reference |
| Yes | 21 | 4.1 (0.44, 47.73) | 0.222 |
| Paragraph reading | No | 25 | Reference |
| Yes | 15 | 0.22 (0.02, 1.54) | 0.158 |
| Sustained vowels | No | 2 | Reference |
| Yes | 38 | 0.11 (0, 3.73) | 0.181 |
| Singing | No | 29 | Reference |
| Yes | 11 | 4.74 (0.7, 39.55) | 0.121 |
| Synthesized voices | No | 38 | Reference |
| Yes | 2 | NA | 0.994 |
| **Sentence reading task used** |
| The model does not fit properly due to the number of responses in each category. |