Letter to the Editor

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Statistical concepts regarding the combined use of questionnaire and auditory tasks

Concepções estatísticas referente ao uso combinado de questionário e tarefas auditivas

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ANSWER

In response to the letter received, related to our article published in this periodical, entitled "Auditory processing screening: contributions of the combined use of questionnaire and auditory tasks"[1], the authors consider the scientific dialogue and the joint construction of new knowledge, focusing on evidence-based practices, to be valid. Even with current scientific advances and despite the increased methodological-scientific rigor of current publications, it is known that no studies are perfect and possible scientific biases can be evidenced, encouraging dialogue and relevant explanations [2].

Two points were raised regarding the need for clarification of the statistical conceptions used, specifically in the correlation calculation. Table 1, which was cited, referred to the Pearson correlation test and showed the *r* values multiplied by 100. The choice to present the results in percentage was due to previous discussions with statistics professionals, aiming to help in visualizing the result without interfering with its interpretation, since the authors' analysis only interpreted the correlation force values, being positive or negative. However, we realized that this was not pointed in Table 1 (the correct would be corr (r) X100) and that gross values were not reported. Considering that and agreeing with the observation that representing this datum in percentage can leave margin for covariance interpretation, we made Table 1 available, including the aforementioned r values.

We also considered it necessary to rectify the assertion that the correlation analysis indicates correlations directly or inversely proportional and that higher absolute values indicate stronger correlations. Correlation analysis is a dimensionless measurement, which can be used to indicate linear relationships between pairs of variables in different units[3]. The statistical analysis used to indicate proportionality is simple linear regression, an analysis unrelated to the aim of this study, which was not predicting one variable in function of the other [3].

The second point questions the absence of correction for multiple comparisons of the p-values for each *r,* mentioning the Bonferroni correction. Neither multiple comparison tests nor multiple correlations, whose inference is made based on more than two variables, were used in this study. The authors understand the assertion; however, multiple analyses of comparison and multiple comparison analysis are different issues. Multiple analyses of comparisons refer to several comparison tests. In turn, multiple comparison analysis refers to a comparison analysis between more than two variables. The Bonferroni adjustment or correction method (0.05/number of comparisons) is commonly used for corrections of averages or in multiple comparison tests, in which multiple comparisons are made and the correction reduces the probability of making a type I error[4]. This calculation does not apply to this study, since we aimed to correlate each score of the self-perception questionnaire with each of the auditory tasks of the Auditory Processing Simplified Assessment.

Study conducted at Departamento de Desenvolvimento Humano e Reabilitação – DDHR, Faculdade de Ciências Médicas – FCM, Universidade Estadual de Campinas – UNICAMP – Campinas (SP), Brasil.

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Table 1. Correlation between the self-perception questionnaire and the auditory tasks of the Auditory Processing Simplified Assessment, considering the groups GI and GII (n = 67)

Group I	Sound Location		MSSV		MSSNV	
	Corr (r)	*p*-value	Corr (r)	*p*-value	Corr (r)	*p*-value
Score 1	-0.127	0.436	0.200	0.217	0.141	0.385
Score 2	-0.147	0.366	-0.193	0.233	0.150	0.356
Score 3	-0.157	0.332	-0.056	0.729	0.191	0.237
Score 4	-0.003	0.987	-0.238	0.139	0.024	0.881
Score 5	0.067	0.681	-0.225	0.162	-0.178	0.271
Score 6	-0.233	0.148	-0.147	0.364	-0.351	**0.026**
Score 7	0.190	0.241	0.085	0.602	0.241	0.134
Score 8	-0.042	0.799	-0.260	0.105	0.078	0.632
Score 9	-0.176	0.278	0.100	0.539	-0.315	**0.048**
Score 10	0.018	0.910	-0.046	0.780	0.066	0.685
Score 11	-0.259	0.107	0.054	0.739	-0.041	0.800
Score 12	0.347	**0.028**	0.300	0.060	0.096	0.554
Score	-0.205	0.204	-0.106	0.517	0.012	0.939
Group II	**Sound Location**		**MSSV**		**MSSNV**	
	Corr (r)	*p*-value	Corr (r)	*p*-value	Corr (r)	*p*-value
Score 1	0.282	0.154	0.047	0.815	0.221	0.267
Score 2	-0.011	0.955	-0.332	0.091	-0.086	0.671
Score 3	0.171	0.393	-0.383	**0.049**	0.181	0.367
Score 4	0.027	0.895	-0.069	0.734	-0.427	**0.026**
Score 5	0.159	0.429	-0.061	0.762	0.266	0.179
Score 6	0.250	0.209	-0.472	**0.013**	0.263	0.185
Score 7	0.032	0.874	0.171	0.394	0.257	0.196
Score 8	0.084	0.675	0.000	0.999	0.083	0.680
Score 9	0.114	0.573	0.033	0.869	-0.213	0.285
Score 10	0.173	0.389	-0.297	0.132	0.323	0.101
Score 11	0.016	0.935	-0.446	**0.020**	0.254	0.201
Score 12	0.181	0.367	-0.297	0.132	0.243	0.223
Score	0.179	0.371	-0.373	0.056	0.272	0.170

Pearson Correlation

Legend: MSSV = sequential verbal memory test; MSSNV = sequential non-verbal memory test; Corr (r) = correlation calculation

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