

Thaís Cristina da Freiria Moretti<sup>1</sup>  
Rita Cristina Sadako Kuroishi<sup>1</sup>  
Patrícia Pupin Mandrá<sup>1</sup>

# Vocabulary of preschool children with typical language development and socioeducational variables

## *Vocabulário de pré-escolares com desenvolvimento típico de linguagem e variáveis socioeducacionais*

### Keywords

Vocabulary  
Child Development  
Social Class  
Preschool Children  
Language

### Descritores

Vocabulário  
Desenvolvimento Infantil  
Classe Social  
Pré-escolar  
Linguagem

### ABSTRACT

**Purpose:** To investigate the correlation between age, socioeconomic status (SES), and performance on emissive and receptive vocabulary tests in children with typical language development. **Methods:** The study sample was composed of 60 preschool children of both genders, aged 3 years to 5 years 11 months, with typical language development divided into three groups: G I (mean age=3 years 6 months), G II (mean age=4 years 4 months) and G III (mean age=5 years 9 months). The ABFW Child Language Test - Vocabulary and the Peabody Picture Vocabulary Test (PPVT) for emissive and receptive language were applied to the preschoolers. The socioeconomic classification questionnaire of the Brazilian Association of Survey Companies (ABEP) was applied to the preschoolers' parents/legal guardians. Data were analyzed according to the criteria of the aforementioned instruments and were arranged in Excel spreadsheet for Windows XP®. A multiple linear regression model was used, adopting a statistical significance level of 5%, to analyze the correlation between age, SES, and performance on the receptive and emissive vocabulary tests. **Results:** In the ABEP questionnaire, participants were classified mostly into social level C (63.3%), followed by levels B (26.6%) and D (10%). The preschoolers investigated presented emissive and receptive vocabulary adequate for the age groups. No statistically significant difference was found for the variables age and SES regarding emissive and receptive vocabulary. Higher test scores were observed with increased age and SES, for social levels "B" compared with "D" and for "C" with "D". **Conclusion:** The variables age and socioeconomic status influenced the performance on emissive and receptive vocabulary tests in the study group.

### RESUMO

**Objetivo:** Verificar a associação entre idade, nível socioeconômico e o desempenho em prova de vocabulário emissivo e receptivo de crianças com desenvolvimento típico de linguagem. **Método:** Participaram 60 estudantes da Educação Infantil, com idade entre 3 a 5:11 anos, de ambos os gêneros, com desenvolvimento típico de linguagem, divididos em Grupos: GI (x̄ 3:6 anos), GII (x̄ 4:4 anos) e GIII (x̄ 5:9 anos). Foram aplicados, individualmente, os testes de Linguagem Infantil ABFW- parte Vocabulário e o Peabody para vocabulário emissivo e receptivo, respectivamente, e o preenchimento do questionário de classificação socioeconômica da Associação Brasileira de Empresas de Pesquisa (ABEP) pelo responsável. Os dados foram analisados conforme critérios dos instrumentos e dispostos em planilha de Excel for Windows XP®. Foi utilizado modelo de Regressão Linear múltipla, adotou-se um nível de significância de 5% para estudar a relação entre a idade, o nível socioeconômico e o desempenho em prova de vocabulário receptivo e emissivo. **Resultados:** No ABEP, os participantes foram classificados em sua maioria no nível social C (63,3%), seguido do B (26,6%) e D (10%). Apresentaram vocabulário emissivo e receptivo condizente com a faixa etária. No vocabulário emissivo e receptivo, houve diferença estatística para a variável idade e nível socioeconômico. Verificou-se maior pontuação nos testes, conforme o avanço da idade e do nível socioeconômico, do nível social "B" para o "D", e do "C" para o "D". **Conclusão:** As variáveis idade e nível socioeconômico podem influenciar o desempenho nas provas de vocabulário emissivo e receptivo do grupo estudado.

### Correspondence address:

Patrícia Pupin Mandrá  
Av. Bandeirantes, 3900, Monte Alegre,  
Ribeirão Preto (SP), Brazil,  
CEP: 14049-900.  
E-mail: ppmandra@fmrp.usp.br

Received: September 02, 2015

Accepted: June 07, 2016

Study carried out at Instituição de Educação Infantil da rede pública e privada, municipalities of Ribeirão Preto (SP) and Santa Rosa do Viterbo (SP), Brazil.

<sup>1</sup>Faculdade de Medicina de Ribeirão Preto – FMRP, Universidade de São Paulo – USP - Ribeirão Preto (SP), Brazil.

**Financial support:** Bolsa de Iniciação Científica, Pró Reitoria de Pesquisa da Universidade de São Paulo – RUSP.

**Conflict of interests:** nothing to declare.

## INTRODUCTION

Lexicon evolves with age, but the type of vocabulary can vary individually in children of the same age group<sup>(1,2)</sup> as a result of intrinsic (cognition, information processing, and personality) and/or extrinsic (socioeconomic status (SES) and cultural, family linguistic, and school contexts) aspects<sup>(1-3)</sup>. Communicative experiences and family SES influence the formal development of language at early age<sup>(1,2,4-9)</sup>. Children of different SES present heterogeneous performance in semantic evaluation tests<sup>(4,5)</sup>. The vocabulary of preschool children is one of the predictors of future academic achievement<sup>(2)</sup>.

Social, cultural, geographic, school and family (parents' educational level, reading habits, and occupation) variables are risk or protective factors for overall and linguistic development<sup>(4,6,7,10,11)</sup> and should be considered during lexicon assessment<sup>(1)</sup>. The purpose of the present study was to investigate the correlation between socioeconomic status (SES) and performance on the Peabody Picture Vocabulary Tests for emissive (PPVT-E) and receptive (PPVT-R) language in a preliminary group of school children for subsequent collection using cluster (schools) sampling in different neighborhoods.

## METHODS

Simple random sampling, following the age criterion (3 years to 5 years 11 months), was conducted with preschoolers of both genders enrolled in two schools selected by convenience of access, resulting in a sample of 60 participants. Exclusion criteria comprised language disorders after screening, signs of auditory and/or neurological alterations, previous or current speech-language pathology treatment, lack of authorization (by parents/legal guardians) or of consent (by the child).

This cross-sectional, analytical study was approved by the Research Ethics Committee of the aforementioned Institution under protocol no. 1488/2014. The participants' parents and/or guardians signed an Informed Consent Form (ICF) and the children agreed to participate (Consent Form prepared based on Resolution 416/12) prior to study commencement.

The preschoolers' parents/legal guardians were interviewed in the schools and responded to the socioeconomic classification questionnaire of the Brazilian Association of Survey Companies<sup>(12)</sup>. After screening, the study participants were individually assessed in a room provided by the schools by means of expressive (ABFW - Vocabulary)<sup>(13)</sup> and emissive/receptive (Peabody Picture Vocabulary Test - PPVT)<sup>(14)</sup> vocabulary tests. After analysis, we obtained the mean for the absolute number of correct answers

for the results of the PPVT<sup>(14)</sup> and the means of occurrence for Usual Verbal Designation (UVD), No Designation (ND), and Substitution Process (SP) per conceptual field, of each participant, by means of the sum of the percentages obtained in each of these items divided by the total of the conceptual fields assessed.

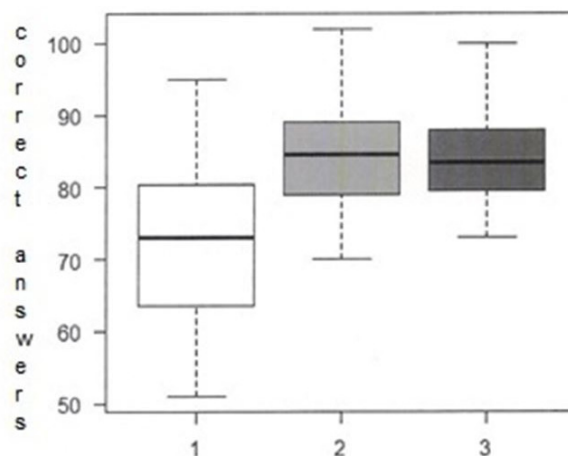
Socioeconomic status (SES) was obtained by grouping the categories A, B, C, D, and E according to the intervals of the scores as follows: A (35 to 46 points), B (23 to 34 points), C (14 to 22 points), and D and E (0 to 13 points)<sup>(12)</sup>.

After calculating the mean and standard deviation for the quantitative and frequency variables and the percentage for the qualitative variables, a multiple linear regression model was used to statistically analyze the correlation between the dependent variable (Peabody and ABFW tests) and the several other independent variables (groups and SES). This statistical model presupposes that residues present normal distribution with a mean of zero and constant variance. A significance level of 5% was adopted for all statistical analyses whose results were obtained using the SAS<sup>®</sup> 9.2 software.

## RESULTS

Table 1 shows the classification of study participants according to socioeconomic status (SES).

Evidence of statistical difference was verified, with better performance in the Peabody Picture Vocabulary Tests for emissive (PPVT-E) (Figure 1) and receptive (PPVT-R) (Figure 2) language, for the groups with higher means of age and SES.

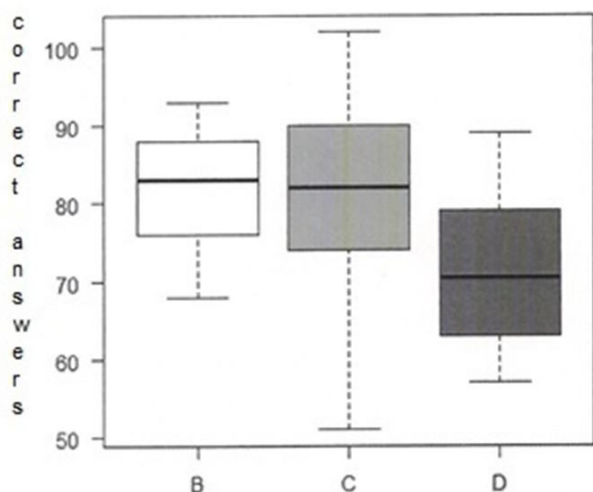


**Caption:** 1 - Group I; 2 - Group II; 3 - Group III  
**Figure 1.** Correlation between age and performance on the emissive and receptive vocabulary tests

**Table 1.** Mean age and socioeconomic status (SES)

Groups	Mean age	SES				
		A	B	C	D	Total
<b>G I</b>	3:6	0	6	11	3	20
<b>G II</b>	4:4	0	5	14	1	20
<b>G III</b>	5:9	0	5	13	2	20
<b>Total</b>	4:6	0	16	38	6	60

**Caption:** G I (3 years to 3 years 11 months); G II (4 years to 4 years 9 months); and G III (5 years to 5 years 11 months)



**Caption:** B - B social class; C - C social class; D - D social class  
**Figure 2.** Correlation between socioeconomic status (SES) and performance on the emissive and receptive vocabulary tests

## DISCUSSION

The performance of the preschoolers investigated on the PPVT-R and PPVT-E tests was influenced by the increased means of the variables age and family SES. School children of lower SES showed poor performance in the vocabulary tests<sup>(2)</sup>. Children with higher mean age perform better during typical development<sup>(1,2)</sup>, because they will develop and expand their cognitive skills to learn new words, organizing the information obtained through social and physical interaction, while interacting with adults and experiencing different situations<sup>(15)</sup>. Nevertheless<sup>(5)</sup>, evidence of poorer performance of older children, aged four to seven years, on the PPVT-R was observed in preschoolers with typical development. This fact underscores the importance of quality teaching in promoting situations that can aid in the construction and expansion of the infantile lexicon<sup>(5)</sup>.

There is an interrelation between the child's access to toys and cultural objects, activities shared with parents, and the sociolinguistic reality<sup>(7)</sup> experienced in different social and education levels<sup>(2)</sup>.

The way parents interact and produce their speech are determining factors for the lexical development and more complex language acquisitions of children<sup>(6)</sup>. A qualitative analysis of information on the communicative styles of adults and the level of child development, associated with the socioeconomic and educational classification of parents, are important for the identification of different developmental profiles. More importantly than the context, the speech addressed to children should consider their level of development, thus the emission of semantically and grammatically simpler linguistic structures during mutual attention activities is essential<sup>(4)</sup>.

Classification into low or high SES may always be suggestive of physical and material resources that families may possess, such as access to a rich recreational and cultural context and leisure activities; however, it is necessary to jointly analyze

other risk factors such as environmental characteristics, the communicative interactions experienced, and the communicative style used by parents.

## CONCLUSION

The results indicate that the variables age and socioeconomic status influence the performance of preschoolers on emissive and receptive vocabulary tests. Further studies conducted with larger samples with stratification in different social classes are needed to confirm the evidence of action of this variable on semantic development.

## REFERENCES

1. Cartmill EA, Armstrong BF 3rd, Gleitman LR, Goldin-Meadow S, Medina TN, Trueswell JC. Quality of early parent input predicts child vocabulary 3 years later. *Proc Natl Acad Sci USA*. 2013;110(28):11278-83. PMID:23798423. <http://dx.doi.org/10.1073/pnas.1309518110>.
2. Medeiros V, Valença RK, Guimarães JA, Costa CC. Vocabulário expressivo e variáveis regionais em uma amostra de escolares em Maceió. *ACR*. 2013;18(2):71-7.
3. Gurgel LG, Plentz RD, Joly MC, Reppold CT. Instrumentos de avaliação da compreensão de linguagem oral em crianças e adolescentes: uma revisão sistemática da literatura. *Revista Neuropsicologia Latinoamericana*. 2010;2(1):1-10.
4. Ramos DD. *Interação adulto criança em creches públicas: estilos linguísticos [dissertação]*. João Pessoa (PB): Universidade Federal da Paraíba; 2010. 154 p.
5. Araújo MV, Marteleto MR, Schoen-Ferreira TH. Avaliação do vocabulário receptivo de crianças pré-escolares. *Estud Psicol*. 2010;27(2):169-76. <http://dx.doi.org/10.1590/S0103-166X2010000200004>.
6. Brancalioni AR, Marini C, Cavalheiro LG, Keske-Soares M. Desempenho em prova de vocabulário de crianças com desvio fonológico e com desenvolvimento fonológico normal. *CEFAC*. 2011;13(3):428-36. <http://dx.doi.org/10.1590/S1516-18462010005000011>.
7. Scopel RR, Souza VC, Lemos SM. A influência do ambiente familiar e escolar na aquisição e no desenvolvimento da linguagem: revisão de literatura. *CEFAC*. 2012;14(4):732-41. <http://dx.doi.org/10.1590/S1516-18462011005000139>.
8. Sohr-Preston SL, Scaramella LV, Martin MJ, Nepl TK, Ontai L, Conger R. Parental socioeconomic status, communication, and children's vocabulary development: a third-generation test of the Family investment model. *Child Dev*. 2013;84(3):1046-62. PMID:23199236. <http://dx.doi.org/10.1111/cdev.12023>.
9. Derby AY. A look into vocabulary spurt in a typically developing child and a child with a developmental language disorder. *JCLAD*. 2014;2(6):24-9.
10. Thomas MS, Forrester NA, Ronald A. Modeling socioeconomic status effects on language development. *Dev Psychol*. 2014;49(12):1325-2343. PMID:23544858.
11. Palácios T, Oliveira LN, Chiossi JS, Soares AD, Chiari BM. Fatores biológicos e socioculturais na avaliação do vocabulário receptivo em português oral de deficientes auditivos pós linguais. *Audiol Commun Res*. 2014;19(4):360-66.
12. ABEP: Associação Nacional de Empresas e Pesquisas. *Critério de classificação econômica do Brasil*. São Paulo: ABEP; 2013.
13. Befi-Lopes DM. Vocabulário (Parte B). In: Andrade CR, Befi-Lopes DM, Fernandes FD, Wertzner HF. *ABFW: Teste de Linguagem infantil e nas áreas de fonologia, vocabulário, fluência e pragmática*. Carapicuíba (SP): Pró-fono; 2000. p. 41-59.

14. Capovilla FC, Capovilla AG, Nunes LR, Araújo I, Nunes DR, Nogueira D, et al. Versão brasileira do Teste de Vocabulário por Imagens Peabody. *Distúrbios da Comunicação*. 1997;8(2):151-62.
15. Borges LC, Salomão NM. Aquisição da linguagem: considerações da perspectiva da interação social. *Psicol Reflex Crit*. 2003;16(2):327-36. <http://dx.doi.org/10.1590/S0102-79722003000200013>.

#### **Author contributions**

*PPM was the study adviser; responsible for defining the study objectives and methods and monitoring the collection and analysis of data; TCFM was in charge of collecting, analyzing, describing, and discussing the data under the guidance of the laboratory technician RCSK.*