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BRAIN DEVELOPMENT OF SCHOOL-AGE CHILDREN ATTENDING TO SCHOOLS WITH HIGH, MEDIUM AND LOW ACHIEVEMENT IN THE SIMCE TEST

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Background and aims: Our previous studies reveal that head circumference, the anthropometric index of both nutritional background and brain development, is the most relevant physical index associated with scholastic achievement and intellectual ability in Chilean school-age children. The aim of this study was to determine the brain development of school-age children attending to schools with high, medium and low achievement in the SIMCE test.

Methods: A representative sample of 26 schools classified with high, medium and low achievement in the SIMCE tests was randomly chosen in the Metropolitan Region of Chile. The sample consisted of 901 school-age children who in 2009 gave the SIMCE (Education Quality System Measurement from the Ministry of Education) tests and who completed the subjects´ consent according to the Declaration of Helsinki. Brain development was measured through the head circumference (HC) expressed as Z-HC and categorised as follows: < -2SD, -2SD to < 0SD, 0SD to 2SD and >2SD. Data were processed using the SAS package.

Results: Children with HC < -2SD and >2SD mainly attended to schools with low and high SIMCE results (60% and 56.8%, respectively) (X^2=40.539; 10 df; P< 0.001). In schools with high and medium SIMCE results, 66.8% and 56.2% of children had HC >0SD and in schools with low SIMCE results, 51% had HC values < 0SD (X^2=19.566; 2 df; P< 0.001).

Conclusions: As we said previously, HC values immediately under the mean are associated with an increased incidence of lower scholastic achievement in Chilean school population.

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