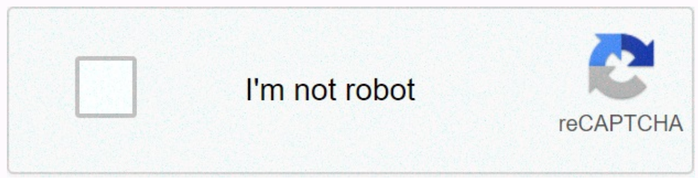

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Rey osterrieth complex figure test child norms

Generate prescriptive data on ray-osteris complex body type (ROCF) in the Spanish-speaking pediatric population. The sample consisted of 4,373 healthy children from Latin America (Chile, Cuba, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Peru, Puerto Rico) and nine Spanish countries. Each participant was given ROCF as part of a larger neuro-psychological battery. ROCF radiation and immediate recall (3-minute) scores were standardized using multiple linear regressions and standard deviations of residual values. Age, age2, gender, and average levels of parental education (MLPE) were included as predictors in the analysis. The final multi-linear regression model showed key effects on age for copy and immediate recall scores, which increased linearly as a function of age. Age2 affected ROCF copy scores for all countries except Puerto Rico. ROCF immediate recall scores for all countries except Chile, Guatemala, Honduras, Paraguay and Puerto Rico. The model showed children with MLPE>12 years parents got higher scores compared to their parents≤12 years for Chile, Puerto Rico, Spain from ROCF copies, Paraguay and Spain immediate recall of ROCF. Gender impact ROCF copies and immediate recall scores for Chile and Puerto Rico and higher scores than girls boys. This is the largest Spanish-speaking pediatric normative study in the world, and in this country neuropsyc psychologists may have a more accurate approach to interpreting ROCF tests in pediatric populations. In 1941, Swiss psychologist Andre Ray designed the Rey-Osteris Composite Figure Test (ROCF) to examine the non-space abilities and memories of patients with traumatic brain injury (Rey, 1941). The ROCF was standardized in 1944 by Paul-Alexandre Osterrieth, who proposed a scoring system for administration and collected the first set of normative data for children and adults (God, Park, Park, Kwon, 2006). Since its initial verification, ROCF has become one of the most widely used neuropsych psychological assessments to assess construction and nonversal memory abilities (Ardila & Rosselli, 1994; Rosselli and Adilla, 1991). ROCF use asymmetrical complex stimuli in its design to evaluate cognitive performance through recognition and recall technology (Pastenau, 1996; off-duty, 2006). There are many cognitive abilities required for good performance, and these, tests are used to evaluate some other brain functions, including attention, working memory, visuospatile ability, and planning (such as Wattanabe, 2005). For example, a ROCF operation includes looking at and copying complex pictures. Next, the individual immediately reproduces it, after a delay, or both (god, etc., 2006). ROCF is often used to examine deficits caused by traumatic brain injury. Patients, tested for dementia, to study cognitive development in children (Kasai et al., 2006; Watanabe et al., 2005). Young, developing children or adults with weaknesses in the aforementioned abilities all generally find very difficult challenges (Akshoomoff, Feroleto, Doyle, and Stiles, 2002; Wasber & Holmes, 1985). ROCF has received psycho-measurement support for both reliability and validity in pediatric populations and past studies. Reliability among pediatric populations tends to be high for both radiant production (α= 0.95) and recalled production (α= 0.94). Wasber & Holmes, 1985). Evidence of convergence feasibility is also supported: scores of children aged six to eight at THE ROCF are correlated with other measures of visuospateal. Constructive and fine motor skills [e.g., Hoover Visual Tissue Test (Hooper, 1983), Wessler Elementary School and Aesthetics Scale Intelligence Revision (Wechsler, 1989), Groove Pegboard (Matthews & amp; Kløve, 1964; Frith, Jacobson, Knight, Robertson, 2005)]. ROCF's psycho-measurement support has contributed to its popularity as a widely used neurological evaluation. Although age has the most notable impact, several variables have been shown to affect test performance among the pediatric population (Beltrán Dulcey & Solís Uribe, 2012; De Liu, 2010; Rosselli and Adilla, 1991). Copy scores tend to perform better at copying pictures accurately than children ages 9 to 12 (Beltran Dooxi & Solis Uribe, 2012) for an increase in 12- to 16-year-olds (Myers & Myers, 1996). Age also has a significant impact on children and adolescents' ability to remember figures as growth between the ages of 12 and 17 slows, increasing scores among 6- to 12-year-olds (Myers Meyers, 1996; Mitrushina, Boone, Rajani, Dielia, 2005). The evidence for gender differences in ROCF is obvious. The two studies found conflicting outcomes, with women outperforming boys between the ages of 8 and 12 in one study (Karapetas & Cantas, 1991), and boys outperforming girls in other studies (Adilla and Rosselli, 1994). However, no other studies have found gender differences (Beltran Dulcey & Solis Uribe, 2012; Demski, Karon, Burns, Sellers, 2000). While education levels were found to affect the performance of

adults in the ROCF, the effects on the pediatric population were not supported (Beltrán Dulcey & Solís Uribe, 2012; Myers & Myers, 1995). Finally, THE ROCF's performance was also found to be directly related to intellectual abilities, where individuals with learning disabilities rarely improve on tests as they age (Waber & Bernstein, 1995). United States, Mexico, Colombia (Ardila & And) prescriptive data for children ages 5 to 14. 1994; Galindo & Cortes, 2003; Karapetas & Cantas, 1991; Wasber & Holmes, 1985, 1986). Using a qualitative scoring system, children's ability to copy and remember pictures from memory was evaluated in multiple dimensions, including accuracy (for example, the quantity recovered from a design). Error (e.g. distortion) organization (ability to format pictures, for example, aligning all four sides); and style (i.e., continuity of lines; out of character, 2006). Children between the ages of 6 and 8 dramatically improve their ability to copy (Waber & Holmes, 1985), most likely due to improvements in approach and organization. By the age of 9, children can reliably produce every part of the design, and changes since that age tend to reflect the increased ability to plan and organize the reproduction of paintings (Ardila & Rosselli, 1994; Wasber & Holmes, 1985). 6-year-olds score between the ages of 14.5 and 16.5 when copying images. Children 14 and older start scoring similarly to adults with an average score of about 32 (Adilla and Rosselli, 1994; Kolb & Whishaw, 1985; Myers & Myers, 1996; Rosselli and Adilla, 1991; Sin et al., 2006). In terms of recalling numbers from memory, past studies have shown that 57% of children between the ages of 5 and 14 were able to reproduce the design in memory immediately after copying, and 43% had a 20-minute delay (Waber & Holmes, 1986) after it could. There are more errors when recalling images than copying images at all ages. In addition, children as old as 5 years old (Waber & Holmes, 1986) tends to make far more mistakes, and errors in each age group tend to decrease. In terms of organizational scores, five-year-olds tend to score the lowest, and these scores typically increase annually through age 14 (Waber & Holmes, 1986). As for style, young children tended to focus on certain parts of the picture, while older children began to express the picture as a whole in composition. By the age of six, children are beginning to show sensitivity to the individual characteristics and overall composition of the picture. Until then, young children tend to perform more accurately when they remember the left side of the picture than the right (Karapetsas & Kantas, 1991; Wasber & Holmes, 1985). Few studies have established prescriptive data on the Spanish-speaking pediatric population and ROCF. While prescriptive data on pediatric populations exists in Colombia (Adilla & Rosselli, 1994) and Mexico (Galindo & Cortes, 2003), comprehensive normative data on pediatric populations does not exist in many other Spanish-speaking countries. The study worked to fill this gap in literature by providing prescriptive data on the population of children and adolescents in Latin American countries and Spain based on multiple linear regression analyses. Sample 칠레, 쿠바, 에콰도르, 과테말라, 온두라스, 멕시코, 파라과이, 페루, 푸에르토리코, 스페인에서 모집된 4,373명의 건강한 어린이 중. 참가자는 다음과 같은 기준에 따라 선택되었다: a) 6 세에서 17 세 사이, b) 태어나 고 현재 연구가 수행 된 국가에서 살고 있는 국가에서 살고, c) 기본 언어로 스페인어, d) 비 언어 정보의 시험에 IQ≥80 (TONI-2; 브라운, 셰르베누, 존슨, 2009년, e) <19 on= the= children's= depression= inventory= (cdi;= kovacs,= 1992).children= with= history= of= neurologic= or= psychiatric= disorders= as= reported= by= the= participant's= parent(s)= were= excluded= due= to= its= effects= on= cognitive= performance.= participants= in= the= study= were= from= public= or= private= schools,= and= they= signed= an= informed= consent= to= participate.= socio-demographic= and= participant= characteristics= for= each= of= the= countries'= samples= have= been= reported= elsewhere= (rivera= &= arango-lasprilla ,= 2017).= ethics= committee= approval= was= obtained= for= the= study= in= each= country.a= trained= examiner= administered= the= rocf= figure= a= (copy),= and= after= 3= minutes,= the= immediate= recall= was= given.= to= score= the= rocf= figure,= the= spanish-language= rocf= manual= was= used= (rey,= 2009).= the= rocf= includes= 18= elements,= and= the= maximum= score= for= each= of= the= two= tasks= (copy= and= immediate= recall)= is= 36.= in= terms= of= scoring,= two= points= are= given= when= the= element= is= correctly= reproduced;= one= point= is= given= when= the= reproduction= is= either= (a)= distorted,= (b)= incomplete= but= placed= properly,= or= (c)= complete= but= placed= poorly;= and= 0.5= point= is= credited= when= the= element= is= distorted= or= incomplete= and= placed= poorly.= a= score= of= 0= is= given= when= the= element= is= absent= or= is= not= recognizable= (osterrieth ,= 1944).detailed= statistical= analyses= used= to= generate= the= normative= data= for= the= rocf= copy= and= immediate= recall= (3= minutes)= scores= are= described= in= rivera= and= arango-lasprilla= (2017).= in= summary,= the= scores= were= standardized= using= multiple= linear= regression= analyses= by= means= of= a= four-step= procedure.= 1)= first,= the= rocf= copy= and= immediate= recall= test= scores= were= computed= separately= by= means= of= the= final= multiple= regression= models.= the= full= regression= models= included= the= following= as= predictors:= age,= age2,= sex,= and= mean= level= of= parental= education= (mlpe).= age= was= centered= (=calendar age= –= mean= age= in= the= sample= by= country)= before= computing= the= quadratic= age= term= to= avoid= multicollinearity= (aiken= &= west,= 1991).= sex= was= coded= as= male=1 and= female=0. the= mlpe= variable= was= coded= as= 1= if= the= participant's= parent(s)= had=>참가자의 부모가 ≤12년의 교육을 받은 경우 12년의 교육 또는 0점을 받았다. 예측 변수가 0.05의 알파를 가진 다변량 모델에서 통계적으로 유의하지 않은 경우, 비유의 변수가 제거되고 모델이 다시 실행되었습니다. 최종 회귀 모델이 수행되었습니다. </19>. 2) Residual score was calculated based on the final model (ei = yi-yσi). 3) The residual was standardized using the residual standard deviation (SDe) value provided by the regression model: zi = ei SDe. 4) Standardized residuals were converted to percentith order values using the standard general cumulative distribution function. This four-step process was applied to ROCF copies and immediate recall (3-minute) scores. For all multi-linear regression models, the following assumptions were evaluated: a) multiple collinearity by the value of the variance inflation element (VIF) that should not exceed 10, and 1 (Kutner, Nachtsheim, Neter, & Li, 2005) and b) should not exceed the value, which was evaluated by calculating the presence of cook's influential value. Cook's maximum distance value was related to the F (p, n-p) distribution. Influential values are taken into account when the percentanthan value is equal to or higher than 50 (Cook, 1977; Kutner et al., 2005). All analyses were conducted using SPSS version 23 (IBM Corp., Armonk, NY). The final multivariate linear regression model for ROCF copy scores by 10 countries was important (see Table 1). In all countries, ROCF copy scores have increased linearly as a function of age. ROCF copy scores in all countries except Puerto Rico were affected by the secondary age effect. Parents in Chile, Puerto Rico, and Spain >Children who received MLPE for 12 years scored higher ROCF copy scores than children whose parents had MLPE≤12-year-olds. The difference between these predictors described in the ROCF copy score reached 25.5% (Guatemala) to 63.6% (Cuba). The final multi-linear regression model of ROCF copycountryBStd. ErrortSig.R2SDe (residual)Chile Constant24.5740.53346.086<0.0010.5205.447 Age1.5860.08219.336<0.001 Age2–0.1280.027–4.774<0.001 MLPE1.4670.6012.4390.015 Sex–1.6950.569–2.9780.003Cuba Constant33.3320.287116.031<0.0010.6363.701 Age1.3010.05523.632<0.001 Age2–0.1800.018–9.936<0.001Ecuador Constant29.2450.50358.176<0.0010.3085.735 Age1.0710.09611.115<0.001 Age2–0.1210.032–3.794<0.001Guatemala Constant31.1120.48164.648<0.0010.2555.395 Age1.3000.1598.161<0.001 Age2–0.1610.046–3.4890.001Honduras Constant29.2670.42968.253<0.0010.4645.066 Age1.4550.09315.666<0.001 Age2–0.1520.030–5.130<0.001Mexico Constant30.0420.32293.240<0.0010.3266.473 Age1.1940.06119.541<0.001 Age2–0.1700.020–8.449<0.001Paraguay Constant29.0430.57250.789<0.0010.3806.367 Age1.3270.10612.547< 0.001 Age2–0.1850.036–5.140<0.001Peru Constant32.8040.43076.276<0.0010.3465.299 Age0.9510.08810.756<0.001 Rico Constant27.5670.91730.077 <0.0010.4435.988 ></0.0010.4435.988 > <0.001 mlpe2.0490.9892.0710.040 =></0.001 > <0.001Spain ></0.001Spain > <0.0010.4874.622 ></0.0010.4874.622 > <0.001 ></0.001 > <0.001 ></0.001 > <0.001The final= multivariate= linear= regression= models= for= the= ten= country-specific= rocf= immediate= recall= scores= were= significant= (see= table 2).= in= all= countries,= the= rocf= immediate= recall= score= increased= linearly= as= a= function= of= age.= the= rocf= immediate= recall= scores= were= affected= by= a= quadratic= age= effect= for= all= countries= except,= chile,= guatemala,= honduras,= paraguay,= and= puerto= rico.= children= from= paraguay= and= spain= whose= parent(s)= had= a= mlpe =>12년 은 부모가 MLPE≤12년을 가진 아이들보다 더 높은 ROCF 즉각적인 리콜 점수를 얻었습니다. 아이의 섹스는 칠레와 푸에르토리코에 대한 ROCF 즉각적인 리콜 점수에 영향을 미쳤으며, 소녀들은 소년보다 높은 점수를 기록했습니다. ROCF 즉각적인 리콜 점수에 설명된 이러한 예측 변수의 차이는 24.8%(에콰도르)에서 53.4%(쿠바)에 달했습니다. ROCF 즉각적인 리콜(3분)에 대한 최종 다중 선형 회귀 모델(CountryBStd). 에러시그. R2SDe (잔류)칠레 <0.0010.4915.507 ></0.0010.4915.507 > <0.001 sex–1.2050.567–2.1250.034cuba =></0.001 > <0.0010.5346.724 ></0.0010.5346.724 > <0.001 ></0.001 > <0.001Ecuador ></0.001Ecuador > <0.0010.2486.889 ></0.0010.2486.889 > <0.001 age2–0.1020.038–2.6710.008guatemala =></0.001 > <0.0010.2876.036 ></0.0010.2876.036 > <0.001Honduras ></0.001Honduras > <0.0010.4155.702 ></0.0010.4155.702 > <0.001Mexico ></0.001Mexico > <0.0010.3126.745 ></0.0010.3126.745 > <0.001 ></0.001 > <0.001Paraguay ></0.001Paraguay > <0.0010.3256.354 ></0.0010.3256.354 > <0.001 mlpe2.3480.7713.0460.003peru =></0.001 > <0.0010.4146.848 ></0.0010.4146.848 > <0.001 ></0.001 > <0.001Puerto rico =></0.001Puerto> <0.0010.3526.576 ></0.0010.3526.576 > <0.001 ></0.001 > <0.001Spain ></0.001Spain > <0.0010.4126.457 ></0.0010.4126.457 > <0.001 ></0.001 > <0.001 ></0.001 > <0.001The assumptions of multiple linear regression analysis were met for all final models. There was not multicollinearity (the VIF values were below 10; VIF≤1.097; collinearity tolerance values did not exceed the value of 1) or influential cases (the maximum Cook's distance value was 0.080 in a F (2,201) distribution which correspond to percentile 6). Norms (e.g., a percentile score) for the different ROCF copy or immediate recall scores by country were established using the four-step procedure described in the statistical analysis section. An example will be provided to assumptions= of= multiple= linear= regression= analysis= were= met= for= all= final= models.= there= was= multicollinearity= (the= vif= values= were= below= 10;= vif≤1.097;= collinearity= tolerance= values= did= not= exceed= the= value= of= 1)= or= influential= cases= (the= maximum= cook's= distance= value= was= 0.080= in= an= a= f (2,201) = distribution= which= correspond= to= percentile= 6).norms= (e.g.,= a= percentile= score)= for= the= different= rocf= copy= or= immediate= recall= scores= by= country= were= established= using= the= four-step= procedure= described= in= the= statistical= analysis= section.= an= example= will= be= provided= to=></0.001The assumptions of multiple linear regression analysis were met for all final models. There was not multicollinearity (the VIF values were below 10; VIF≤1.097; collinearity tolerance values did not exceed the value of 1) or influential cases (the maximum Cook's distance value was 0.080 in a F (2,201) distribution which correspond to percentile 6). Norms (e.g., a percentile score) for the different ROCF copy or immediate recall scores by country were established using the four-step procedure described in the statistical analysis section. An example will be provided to > 콘스탄트14.3000.39935.883</0.001The> 콘스탄트14.3000.39935.883</0.001The> Understanding of the procedures used to obtain percentiths associated with scores in this test. There is a 14-year training (MLPE) to find percentean scores for a 12-year-old Chilean boy who scored 21 runs on a ROCF immediate recall (3-minute) test. The steps to obtain a percentith on this score are as follows: 1) Find Chile in Table 2 and provide a country-specific final regression model for ROCF immediate recall scores. Use the B weights to create an equation that uses the coding provided in the Statistical Analysis section to obtain an expected ROCF immediate recall score for this child. The B weight is multiplied by the gender coded with the median age (= calendar age – average age of the Chile sample, 11.5 years) and male = 1 and female =0. Age2 and MLPE are not included in this model because they were not important predictors. See Rivera and Arango-Raspreya (2017) to determine the average age of each country's sample. Finally, the results are added to the constants generated by the model to calculate the predictions. For Chilean boys, the expected ROCF immediate recall score will be calculated using the following equation: yσi= 14.300 + [1.550 · (Agei-11.5)] + (-1.205 · Sexi) The boy is 12 years old. MLPE (14 years) is divided into 1 to 12 years (and allocated 1 year) or more than 12 years (and 1 allocated) in the model, but MLPE is not included in the model because it was not an important predictor in this case. In this case, the child is male, so the sex value is 1, because the gender is coded as male = 1 and female = 0. Thus, the predicted value equation is: yσi = 14.300 + [1.550 · (12-11.5)] + (-1.205 · 1) = 14.300 + 0.775 - 1.205 = 13.870 . 2) To calculate the residual value (shown in the equation ei), subtract the actual ROCF immediate recall test score (21 points) from the calculated prediction value (ei = yi-yσi). In this case, ei = 21 - 13.870 = 7.130. 3) Next, refer to the SDe column in Table 2 to get the regional SDe (residual) value. 5.507 for Chile. You can use this value to convert the remaining values to standardized z-scores using equations (zi = ei/SDe). In this case, there is 7.130/5.507 = 1.295. This is the standardized z-score of a 12-year-old Chilean boy who scored 21 in a ROCF immediate recall with parents with 14 years of education (MLPE). 4) The final step is to convert the z score to percentith by using the tables available in most statistical reference books (e.g. Strauss, Sherman, and Spreen, 2006). In this example, the z-score (probability) is 1.295 corresponding to the 90th percentean. The table for each test (copy vs. immediate recall) when performing these calculations. The four-step normative procedure described above provides clinicians with the ability to determine the correct percentithrity for a child with a specific score on a copy of THE ROCF or an immediate recall test. However, this method is prone to human error due to the number of hand calculations required. To improve user affinity, the authors completed these steps for various raw scores based on age, gender, and MLPE, and created a table where clinicians could more easily obtain percenty ranges/estimates related to the raw scores given in this test. These tables are available for testing of countries and types in the appendix. To obtain an approximate percentith of the above example, you must follow these steps to obtain a raw score of 21 using the simplified normative table provided in the appendix (converting a raw score of 21 in the ROCF immediate recall test for a 12-year-old Chilean boy): (1) First, identify the appropriate table that guarantees the appropriate country and test (copy-to-immediate recall). In this case, a table table for ROCF immediate recall scores for boys in Chile can be found in A13. (2) In this case, look for the appropriate age for a 12-year-old child. (3) Next, look at the age column of 12 years old to find the approximate location of the raw score obtained from the test. Within the 12-year column, the score of 21 obtained by this Chilean boy is the approximate percentan of 90, which can sometimes be calculated by hand and slightly different from the more accurate method, since the user-friendly table is based on a limited number of percenty values. Due to space limitations, individual percentithrugs cannot be displayed in these tables. If the correct score is not listed in the column, you must estimate the percentid by default value from the list of available raw scores. ROCF is one of the most widely used neuropsych psychology tests in the world to evaluate visuospatual, visual motor and visual memory processes in both children and adults (Frisk et al., 2005). In Latin American countries and Spain, this test is one of the 10 most utilized neuropsych psychology tests by clinical neuropsych psychologists during their professional practice (Arango-Raspriya, Stevens, Moret Paredes, Adilla, Rivera, 2016; Olavarieta Randa et al., 2016). However, despite its large use, there is currently little validation and research on the standardization of this test for Spanish speakers. Most of the research has been conducted with the adult population, and to date very few studies have been conducted with the pediatric population. Therefore, neuropsypsyrms who use this test in Latin American countries or Spain with the pediatric population usually perform Interpretation using norms of other countries (Arango-Raspreya, etc., 2016). Thus, there was an overwhelming need for normative data from the ROCF on pediatric populations in both Latin American countries and Spain (Arango-Raspriya and others, 2016; Olavarieta Randaet al. 2016). To fill the gaps in literature, the purpose of the study was to obtain normative data on ROCF copies and immediate recall (3-minute) scores for children and adolescents in nine Latin American countries (Chile, Cuba, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Peru and Puerto Rico) and Spain. The study showed that there are different types of variables associated with the performance of tests such as age, secondary age, gender, and MLPE. In general, the final regression model was found to account for between 25.5% and 63.6% of variance for ROCF copies, and between 24.8% and 53.4% of variance for ROCF immediate recalls. Because age was largely related to the total score of both ROCF copies and ROCF immediate recalls, scores increased linearly as children got older. These results are similar to those reported in other studies that have shown ROCF scores to increase significantly with age (Frisk et al., 2005; Myers & Myers, 1996). In addition, the curval effect of age on ROCF copies has been shown in all countries except Puerto Rico. Scores increased noticeably between ages 6 and 13, while those increasing slowly decreased to 13-14 after approximately age, later stabilizing and resembling adults. Other studies, however, found that an increase in scores began to occur mostly between the ages of 12 and 16 in 17 years when it matched the performance of adults (Myers & Myers, 1996). Curve effects have also been observed for rocf immediate recalls for all countries except Chile, Guatemala, Honduras, Paraguay and Puerto Rico. Scores increased markedly among 6- to 15-year-olds, followed by a small increase among 16- to 17-year-olds. Past studies have found that ROCF for immediate and delayed recalls, following a small increase in scores between ages 6 to 12 and 17 (Anderson & Lajoie, 1996; Boone, Lesser, Hill Gutierrez, Verman, and D'lia, 1993; Caffera, Bezadini, Diech, Jonato, Veneri, 2002; Chervinsky, Mitrushina, Satz, 1992; Chiuli, Haland, Laru, Gary, 1995; Denman, 1984; Hartman & Porter, 1998; Kramer & Wells, 2004; Myers & Myers, 1995, 1996; Mytton, Wolters, Lannu, Vingerhots, 2004; Ponton et al., 1996; Van Gough, Satz and Mitrushina, 1990). On the other hand, the results of this study contradict those found by Beltran Dusi and Solis-Uribe (2012). In their study, ROCF copies and ROCF immediate recall scores were not associated with age. One possible explanation It can be the small sample size (141) used. Another potential explanation is that Beltrán Dulcey and Solís-Uribe (2012) divide the samples into two ages (9 to 12 years and 13 to 16) and compare the performance of these two groups using independent measures t-test. In this study, variable age was analyzed as a continuous variable, the sample size was symmetrical for each age. After that, the effect of age on each test score was calculated by several linear regressions. Sex is not associated with a copy of THE ROCF or test performance for ROCF immediate recall in most countries. These results are similar to those reported in other studies where sex was not associated with the performance of this test (Beltrán Dulcey & Solís-Uribe, 2012; Poulton, Mofit, 1995). However, sex was associated with copy and immediate recall scores in Chile and Puerto Rico, where Chilean and Puerto Rican girls scored better than boys. Despite the small interest in paying for parental education levels in the standardization of neuropsych psychological tests on pediatric populations, research supports the educational levels of influential parents in children's development of cognitive function (Schady, 2011). In this study, parents of MLPECIle, Puerto Rico, were associated with ROCF copy scores in Spain and ROCF immediate recall scores in Paraguay and Spain. In both cases, children whose parents were educated for more than 12 years scored much higher than children whose parents were educated for less than 12 years. The results of this study have notable clinical implications. ROCF's established norms for 10 Spanish-speaking countries provide an excellent opportunity for clinical neuropsychologists to use this exam as part of their neuropsychologist evaluation protocols for the purpose of assessing changes in asopatial, visual motor, and visual memory processes in pediatric populations between the ages of 6 and 17. Using these norms, each child's performance can be evaluated in a more accurate and standardized way based on age, gender, and parental education. The creation of standardized norms will improve neuros psychological evaluation and diagnosis in both normal and clinical populations. Deficits are common in children with learning disabilities (Kirkwood, Because it exists in Wyler, Bernstein, Forbes, Waber, 2001), brain injury (Berger et al., 2000), autism (Chermeinsky, Risha, Gimara, Sares, Bosa, 2014), attention and hyperactivity disorder (Rizzutti et al., 2008) and attention and hyperactivity disorder (Rizzutti et al.). In addition, norms that value neuro-psychological performance in children with disabilities inform the prognosis process and facilitate the implementation of cognitive rehabilitation programs among the population. The strength of this study, which fills the gaps in literature and provides the largest sample to validate and standardize the Spanish-speaking population and ROCF, must be interpreted in light of some limitations. The study provides rocf's prescriptive data on nine countries in Latin America and Spain. For this reason, it is recommended to use these norms to assess the pediatric population in Spanish-speaking countries, which are not included in this study. Future studies should be conducted to standardize ROCF in other Spanish-speaking countries. Although the norms produced by this study can be used by neuropsy psychologists in nine Latin American countries included in our sample or other countries to assess Spanish-speaking immigrant children of Spain, we note this use because of the potential influence of other variables not evaluated in the current study, such as the level of inspection, bilingualology, and the number of years living in the country. In addition, the quality of education of children and parents is another aspect that can affect children's cognitive performance. ROCF is one of the world's most used instruments for measuring visuospatual, visual motor, and visual memory issues. However, it is essential to consider that some clinical diagnosis should not be based solely on scores of tests. Scores should be consolidated and interpreted as part of a much larger battery that evaluates these processes in more detail. Due to the limited testing and norms to evaluate these processes in Latin America and Spain, standardization efforts should be made in future studies for other similar assessments. While the size of the samples was appropriate in each country where the study was conducted, it is important to note that only samples from Chile, Mexico, Paraguay, Puerto Rico and Spain were obtained from different regions of the country, while samples from the rest of the country were collected in one geographic area. Future research should expand data collection to other geographic regions in these countries to improve representation and generality. Spanish was the first language for children in the study. Despite Spanish being the native language of the majority of the population of Latin America and Spain, it is important to consider the cultural and linguistic richness of these countries. For example, many children's native language may be completely different from Spanish (e.g. Portuguese, Euskera, Catalan, 24,000, Maya, Ketchua). For this reason, caution should be used when using these norms in children whose first language is not Spanish.Finally, participants in the current study represent both normal, healthy populations. Future research needs to be conducted. The population to establish the sensitivity and specificity of this test. ROCF is one of the most widely used neuropsychum tests for evaluating visuospatual, visual exercise and visual memory processes in children and adolescents in Latin America and Spain. Studies that have established standardized norms in 10 countries have shown that age, gender, and parent education levels affect ROCF scores. These variables should be taken into account when interpreting the scores of children. These norms provide neuropsyc psychologists in these countries with valid evaluation tools available in pediatric populations and daily practice.1 Aiken L. S. and West S. G. (1991). Multiple regressions: Test and interpret interactions. Newbury Park, CA: Sage.2 Axhomomov N. A., Perolto C.. C. Doyle R. E. , and Stiles J. (2002). Effects of early unilateral brain damage on perceptual tissue and visual memory. Neuropsychpsych, 40 (5), 539-561. doi: 10.1016/s0028-3932 (01)00129-43 Anderson V. A. and Rajoy G. (1996). 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