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Sociodemographic variables determine the academic performance of Adolescents

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Abstract

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Problem Statement: It is important to have a holistic approach to student learning, sustained in a multidisciplinary approach, in which socio-demographic factors and lifestyles may relate to academic achievement. Research Question was which socio-demographic variables influence the school performance (study environment, study planning, study method, reading skills, motivation to study, overall school performance) of adolescents? We aimed to identify socio-demographic factors associated with academic performance of adolescents. A quantitative, cross sectional, descriptive, correlational, explanatory, retrospective study applied as research methods. Information collected by questionnaire of direct administration and school performance scale. Non-probabilistic convenience sample of 380 students of 7th, 8th and 9th years of education in the school year 2011/2012, from a 2nd and 3rd cycle Basic School of Viseu Municipality, Portugal. The best school performance in adolescents was associated with female gender ($p<0.001$); with age $\leq$ 12 years, ($p<0.001$); with adolescents whose parents have secondary or higher education ($p=0.019$). There was no relationship between school performance and socioeconomic status and area of residence. Conclusions: It was concluded that the socio-demographic variables, including gender, younger age and parental education are determinants of adolescent school performance.

Keywords: Academic achievement, adolescence, sociodemographic variables

1. Introduction

Learning is what the brain does best, and the learning changes the brain because it can self-renew with each stimulus, experience and behaviour. Studies by Diamond in 1967, have revealed that the brain can develop new connections with environmental stimuli, and the process of establishing connections will influence learning ability (Jensen, 2002). However, there are other variables that can also influence and determine the educational efficiency and performance; in particular individual and

context variables. Thus, the set of variables that influence the success or failure in school, are called determinants of academic performance and can be grouped into two levels: the personal type and contextual (socioenvironmental, institutional and instruction). Personal variables include those that characterize the student as an apprentice: intelligence, attitudes, learning styles, prior knowledge, gender, age and motivational variables (self-concept, learning goals, causal attributions) (González-Pienda, 2003)

Based on Vygotsky and on the assumed concept of zone of proximal development (ZPD), each subject has a set of capabilities named real development, which they use when working individually. In the same condition, the subject also has a potential development, consisting of skills in a maturing phase that he can use with the help of more competent peers, while working in interaction. ZPD is the distance that mediates between the real development and the potential development and it is in this area that teachers should work with their students (César, 2000).

Studies by Olvera and Moya (2012) show that school performance is associated with equality, equity of educational and social opportunities, not only to individual capabilities. These authors report that the social factor determines academic achievement, and is influenced by the original social class and cultural contexts, since the family determines the basic foundation of the individual's personality. The same authors argue that the cultural capital that the teenager has, underpinned by intellectual and moral instruments (values and attitudes) of prior acquisition to school, which families with low cultural level are unable to offer its youngsters, interfere with the importance of creating habits and cultural capital of the juvenile, even when considering similar socio-economic levels.

Studies by Navarro (2003) involving adolescents of school age, showed a significant relationship between the variables academic performance and social skills. In addition to underline aspects related to motivation, effort and personal pride, courage, self-esteem and persistence on tasks, they are also associated with school performance. Another study, by Mascarenhas, Almeida and Barca in 2005, refers that the higher levels of academic qualifications of the parents are significantly associated to the personal efforts of students to achieve academic success and in the same condition, parents of lower academic qualifications support low academic performance in the absence of personal commitment of the student. Thus, the personal perceptions of competence of adolescents are constructed in the parents' qualifications reflecting these causal attributions and are reflected in the actual school performance.

The aim of this study was to identify sociodemographic factors associated with academic performance of adolescents.

2. Research Methods

This is a quantitative, cross-sectional, descriptive and correlational, explanatory and retrospective study. A questionnaire of direct administration with sociodemographic questions (gender, age, residence, socioeconomic status, cohabitation, parent’s academic qualifications) and school performance scale by Fermin, adapted by Duarte (2008), were the selected instruments for data collection. A non-probabilistic convenience sampling consisting of 380 adolescents (50.8% girls), aged between 11 and 17 years, age≤12 years (21.1%), 13 (31.6%), 14 (27.6%) and age≥15 years (19.7%),

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attending the 7th (31.0%), 8th (36.3%) and 9th grade (32.6%) in the school year 2011/2012, of the 2nd and 3rd cycle Basic School of the Viso School Group, of the Municipality of Viseu, in Central Portugal.

The majority of the teenagers live in an urban area 53.2% with 46.8% living in rural areas; the cohabit with parents 75.8%, with grandparents 88.2%, and people who are not their immediate families 97.6% .As the characterization of the family environment, it was found that 81.1% of the parents are married; 49% of parents and 40.9% of mothers have completed the 2nd and 3rd cycles of basic education; 59.5% of respondents have an average household income and 35.3% of parents are "Skilled workers in industry, construction and craftsmen"; while 33.9% of mothers are "unskilled workers".

Authorization was sought and obtained from the General Directorate of Innovation and Curriculum Development (DGIDC) and the Executive Council of the 2nd and 3rd cycle Basic School of the Viso School Group.

The statistical analysis was processed using SPSS (Statistical Package for Social Sciences) version 21.0 for Windows**.**

3. Findings

School performance and gender

Girls reveal better overall school performance and in all dimensions of scale (Table 1). Equal variances were assumed only for reading skills and motivation to study

Table 1. School performance by gender.

Gender	Female		Male		Levene	t	p
School performance	Average	SD	Average	SD	p		
Study Environment	34.30	6.66	30.36	9.14	0.000	4.824	0.000
Study Planning	29.54	7.18	26.96	8.88	0.002	3.116	0.002
Study Method	30.18	7.54	26.87	9.30	0.001	3.807	0.000
Reading Skills	29.51	8.99	27.00	9.13	0.167	2.708	0.007
Motivation to study	29.94	8.90	27.48	9.04	0.119	2.678	0.008
Overall School Performance	153.74	34.43	138.67	42.77	0.001	3.775	0.000

School performance and age

Younger students (⩽12 years) show better academic performance in all dimensions of scale and overall value. The older students aged ⩾15 years have lower school performance. The value of F is explanatory, which allows us to state that age influences the academic achievement of students, and the percentage of explained variance indicates that the greater variability is in the overall school performance, with 8.06%.

Table 2. One-Factor Analysis of Variance between age and school performance.

Age	≤ 12 Year olds		13 year olds		14 year olds		≥ 15 year olds		F	p	%VE
School performance	Averag	SD	Avera	SD	Averag	SD	Average	SD			
Study Environment	34.27	7.67	32.95	8.85	33.53	6.58	28.37	10.59	7.787	0.000	5.84
Study Planning	30.42	8.02	28.78	7.12	28.60	7.72	24.70	9.38	7.188	0.000	5.42
Study Method	30.68	9.25	29.65	7.40	29.18	7.89	23.65	8.96	11.45	0.000	0.83
Reading Skills	30.53	9.00	29.36	9.67	28.52	7.61	23.78	8.99	8.771	0.000	6.54
Motivation to study	31.27	9.06	29.75	9.27	28.94	7.84	24.09	8.74	9.854	0.000	7.28
Overall School	157.20	40.16	150.50	35.68	148.79	33.86	124.61	44.07	10.99	0.000	8.06

There are statistical differences between adolescents aged ≤12 years and ≥15 years, between 13 and ≥15 years, between 14 and ≥15 years, in all aspects of school performance, reinforcing once again that the younger students (≤12 years) show better academic performance and the older (≥15 years) are those with lower school performance.

Table 3. Analysis of variance between age groups and school performance.

Variables	Post hoc					
School performance	1vs2	1vs3	1vs4	2x3	2x4	3x4
Study Environment			0.000		0.002	0.000
Study Planning			0.000		0.003	0.007
Study Method			0.000		0.000	0.000
Reading Skills			0.000		0.000	0.003
Motivation to study			0.000		0.000	0.002
Overall School Performance			0.000		0.000	0.000

Assuming that adolescents with a parent with secondary or higher education schooling are those who demonstrate better school performance, the differences are significant to the study methods (p=0.004), motivation for the study (p=0.005) and overall school performance (p=0.019).

Table 4. School performance and parents academic qualifications.

Parents academic qualifications	Both completed 3rd cycle		One parent Sec. or higher ed.		Levene	t	p
School performance	Average	SD	Average	SD			
Study Environment	31.99	9.33	33.10	7.74	0.070	-1.242	0.215
Study Planning	27.61	8.39	29.09	7.79	0.250	-1.763	0.079
Study Method	27.42	8.66	29.94	8.35	0.358	-2.863	0.004
Reading Skills	27.46	9.61	29.28	8.42	0.328	-1.933	0.054
Motivation to study	27.56	9.59	30.17	8.12	0.180	-2.821	0.005
Overall School Performance	142.06	40.77	151.60	37.17	0.160	-2.357	0.019

On average students are more concerned with the study environment (32.4±8.21) and less with the study planning (28.3±15.08) with significant differences between the sexes on the overall school performance (p=0.000) and on all its dimensions (study environment, study planning, study method, reading skills, motivation to study). With significant differences, it is evident that girls and younger students (p = 0.000) show a better school performance.

Table 5. Determinants of school performance.

Sociodemographic Factors	Average Group 1	Average Group 2	p
Girls	153.74	138.67	0.000
Younger students (≤ 12 years)	157.20	124.61	0.000
Adolescents whose parents have secondary or higher education show better study method, motivation and overall performance	151.60	142.06	0.019

4. Discussion

Teenagers in all subscales related to age and sex, have an above average productivity achieving the highest rate in the study environment and the lowest in study planning.

The sample under study is similar to that used in other studies, including the study by Ansari and Stock (2010). In the present study, and with regard to age, the mean was 13.56 years, higher in males

(13.72 vs. 13.39 years). In European countries the research carried out by a team coordinated by Balaguer (2002) on adolescent lifestyles of 11, 13 and 15 years of age, in the Valencian community also had a sample similar to ours, with adolescents with a mean age of 13.14 years and a similar gender distribution. In Portugal, a study of Matos et al., (2012) has a sample with identical variables and the students are distributed in similar percentages by gender, involving about 52% of girls.

As verified in a study by Duarte (2008), with high school students in which the girls showed better school performance in all subscales, results of this study show that academic achievement is higher in girls. Regarding the age we assess that the younger students (≤12 years) show better overall school performance, and in all dimensions of scale, and older students (≥15 years) are those with lower performance, as it happened in a study in the Valencian community, with adolescents aged between 11 and 16 years, by Pastor, Valcárcel and García-Merita (2002), where overall, the younger students value more the academic performance than the ones studying at more senior levels. The occupational category of the household head, as well as the material resources available in the day-to-day, are indicators of the economic dimension of social origin interfering with the quality of school performance.

Teenagers with parents whose education is at secondary or higher education level, achieve a better school performance, a clearly visible aspect in the studies by Mascarenhas et al. (2005); Seabra et al. (2008); Navarro (2003); Olvera and Moya (2012 Formiga & Dias (2002); Formiga, Ayroza, & Dias, (2005); Morales- Serrano et al, (1999); Sanchez-Serrano (2001); Gaspar (2003); Sá (2012).

5. Conclusions

Adolescents in all subscales (gender, age) have an above average yield, achieving the highest rate in the study environment and the lowest in the study planning. Girls, younger students and those with parents with education higher than 12th grade present the best results in school performance.

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References

Ansari WE, Stock C(2010). Is the Health and Wellbeing of University Students Associated with their Academic Performance?
Cross Sectional Findings from the United Kingdom. International Journal of Environmental Research and Public Health,7:509-27.
Balaguer, I., Castillo, I., Pastor, Y., Moreno, Y., & Atienza, F. L. (2002). La investigación sobre los estilos de vida de los adolescentes de 11, 13 y 15 años de la Comunidad Valenciana. In I. Balaguer (Ed.), Estilos de vida en la adolescencia (pp. 27-36). Valencia: Promolibro.
César, M. (2000). Interações na aula de matemática: um percurso de 20 anos de investigação e reflexão (Esferagráfica/ Cartolito, Lda ed., pp. 13-34). Viseu: Fundação Calouste Gulbenkian.
Duarte J. Privação do sono, rendimento escolar e equilíbrio psicoafectivo na adolescência. Porto: Universidade do Porto; 2008.
Formiga, N. S., Ayroza, I., & Dias, L. (2005). Escala das atividades de hábitos de lazer: construção e validação em jovens. Psic: revista da Vetor Editora, 6, 71- 79.

Formiga, N. S., & Dias, P. S. (2002). Corelatos entre hábitos de lazer e os indicadores do rendimento escolar. Psicologia, 1-11.

Gaspar, M. F. R. d. F. (2003). O trabalho com pais na prevenção do comportamento antissocial. In I. Alberto, A. C. Fonseca, C. P. Albuquerque, A. G. Ferreira & J. Rebelo (Eds.), Comportamento antissocial: escola e família (pp. 217-230). Coimbra: Centro de psicopedagogia da Universidade de Coimbra.

Gonzalez- Pienda González-Pienda, J. A. (2003). El rendimiento escolar. Una análisis de las variables que lo condicionan. Revista Galego-Portuguesa de Psicoloxia e educacion, 8, Ano 7 (7).

Jensen, E. (2002). O cérebro, a bioquímica e as aprendizagens - Um guia para pais e educadores (ASA Ed. 1 ed.). Porto.

Matos, M. G. (2003). A Saúde dos Adolescentes Portugueses (Quatro Anos Depois) (FMH ed.). Lisboa: FMH.

Matos, M. G., Simões, C., Tomé, G., Camacho, I., Fereira, M., Ramiro, L., . . . Social,E. A. (2012). A saúde dos Adolescentes Portugueses (C. d. M. e. O. D. T./IHMT/UNL Ed. Equipa do Projeto Aventura Social e Saúde em 2010 ed.). Lisboa: FMH/Universidade Técnica de Lisboa.

Mascarenhas , S., Almeida, L. S., & Barca, A. (2005). Atribuições causais e rendimento escolar: Impacto das habilitações escolares dos pais e do género dos alunos. Revista Portuguesa de Educação, 18 (1), 79-91

Mezzomo, R. J. (2008). Excelência Escolar: Um estudo sobre estratégias educativas em famílias com filhos de rendimento escolar elevado. (Mestrado em Educação), Universidade Regional de Blumenau, Blumenau. Acedido em http://proxy.furb.br/tede/tde_busca/arquivo.php?codArquivo=471

Morales- Serrano, A.M.,Arcos-Dominguez, P. Ariza- Reyes, E. cabelo- Lopez, M.A., Lopez –Lousano, M.c., Pacheco-Rabasco, J.Venzalà – Diaz, M.C. (1999). El entorno familiar y el rendimento escolar. Proyetos de envestigacion educativa, 57-65

Navarro, R.E. (2003). Fatores associados al rendimento académico. Revista Iberoamericana de educacion.

Olvera, S. G.,& Moya, G. S. M. (2012). Análisis teórico sobre el concepto de rendimento escolar y la influencia de fatores socioculturales. Revista ibero-americana para la investigación y el desarollo educativo, 9, 1-2

Pastor Y, Valcárcel P, García-Merita M (2002). La escuela y el tiempo libre en la adolescencia temprana. In: Balaguer I, editor. Estilos de vida en la adolescencia. Valencia: Promolibro; p. 159-82.

Sá, E. M. M. (2012). Habilidades Sociais, Bem -Estar psicológico e Rendimento Escolar. (Doutoramento), Universidade de Aveiro, Aveiro.

Sanchez-Serrano JSCS. (2001). El rendimiento escolar y sus contextos. Revista Complutence de Educacion.,12(1):15-80.

Seabra A, Mendonça D, Thomis M, Anjos L, Maia J. (2008). Determinantes biológicos e sócio-culturais associados à prática de atividade física de adolescentes. Cad Saúde Pública, 24(4):721-36