

# Behavioral characteristics of the only child vs first-born and children with siblings

## Características de comportamento do filho único vs filho primogênito e não primogênito

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**Abstract Objective:** To assess the impact of being an only-child on characteristics of parental and peer relationships, school achievement, social, and sexual behavior.

**Methods:** Three hundred and sixty adolescents identified at the third year of high school were sampled from a private school at Porto Alegre in the years 2000 and 2001. Fifteen- to nineteen-year-old males and females were selected in a cross-sectional study. Assessment of demographic data, schooling of parents, birth order (only-child, first-born and not-first-born children), cigarette smoking, alcoholic beverages consumption, illicit drug use, school achievement, social and sexual behavior and their characteristics were gathered with a pre-tested self-administered questionnaire, anonymously completed at classroom.

**Results:** This study was composed by 8% only-children, 35% first-born, and 57% not-first-born adolescents of a homogeneous socioeconomic sample. Social behavior, parental and peer relationships, sports practicing, smoking and illicit drug use were not associated with birth order. Only-children were less likely to report an episode of alcohol intoxication (39%) than first-born (68.9%;  $p=0.03$ ) and adolescents with siblings (72.3%;  $p<0.001$ ). Only-children had higher school achievement than adolescents with siblings ( $p=0.03$ ). Sexual behavior distinguished only-children due to younger age at first sexual intercourse and lower rate of heterosexual self-identification, which persisted even after adjustment for confounding variables compared to not-first-born adolescents ( $p=0.038$ ).

**Conclusions:** Our findings suggest that the status of being an only-child is not associated with a poorer outcome in several areas of the development. The impact of the presence of siblings in the development of sexual identification should be further explored.

**Keywords** Adolescents. Only-child. Alcohol. Drug use. Smoking. Sexual behavior.

**Resumo Objetivo:** Avaliar o impacto de ser filho único sobre as características de relacionamento com amigos e pais, desempenho escolar, comportamento social e sexual.

**Métodos:** Realizou-se um estudo incluindo-se um total de 360 adolescentes identificados no terceiro ano do ensino médio de uma escola privada de Porto Alegre, em 2000 e 2001. Adolescentes do sexo masculino e feminino, com idade entre 15 e 19 anos foram selecionados para participar de um estudo transversal. Um questionário anônimo, pré-testado e auto-administrado foi preenchido em sala de aula com dados demográficos, educação dos pais, ordem de nascimento (filho único, primogênito e não primogênito), tabagismo, consumo de bebidas alcoólicas, uso de drogas ilícitas, desempenho escolar, comportamento social e sexual e outras características.

**Resultados:** Identificaram-se 8% de adolescentes filhos únicos, 35% primogênitos e 57% não primogênitos em uma amostra socioeconomicamente homogênea. Comportamento social, relacionamento com os pais e amigos, prática de esportes, tabagismo e uso de drogas não se associaram com ordem de nascimento. Os filhos únicos menos frequentemente relataram intoxicação alcoólica (39%) comparativamente aos primogênitos (68,9%;  $p=0,03$ ) e adolescentes com irmãos (72,3%;  $p<0,001$ ). Filhos únicos obtiveram melhor desempenho escolar do que os filhos com irmãos ( $p=0,03$ ). Comportamento sexual diferenciou os filhos únicos devido à idade mais precoce com que iniciaram a atividade sexual e pela menor taxa de auto-identificação como heterossexual, a qual persistiu mesmo após controle para fatores de confusão comparativamente a filhos não primogênitos ( $p=0,038$ ).

**Conclusões:** Nossos achados sugerem que ser filho único não está associado com pior desempenho em diversas áreas do desenvolvimento. O impacto da presença de irmãos no desenvolvimento da identificação sexual deve ser explorado em trabalhos futuros.

**Descritores** Adolescência. Filho único. Álcool. Tabagismo. Drogas. Comportamento sexual.

## Introduction

In the last decades there has been a continuous diminishing in the mean size of families, a change in the family structure and an increase in the frequency of families with only one child. It has been suggested that the absence of siblings and the higher intimacy with adults could interfere in the intellectual development, in the personality and in the adaptation of the subject to social life.<sup>1-3</sup>

Historically, there have been reports that only-children receive excessive attention, mature precociously and, due to the absence of siblings, become selfish, demanding, dependent and moody, in comparison to children with siblings.<sup>4</sup> Some pieces of evidence do not confirm the stereotype about only-children,<sup>5,6</sup> suggesting that they do not present personality problems more frequently than children with siblings and can even show benefits related to intelligence, school achievement and career success.<sup>5</sup> Only-children seem to have as many friends as not-only ones, being leaders and feeling satisfied with their lives.<sup>7</sup> Only-children tend to show traits similar to first-children<sup>7</sup> and seem to have higher self-esteem than children with siblings.<sup>5</sup> However, there are little available data comparing characteristics associated with the condition of being an only-child<sup>6</sup> to the condition of being the first-child and to that of having siblings.<sup>7</sup>

In our study, we have investigated the effect of the condition of being the only-child, comparatively to first-children and adolescents who are not first-children, regarding characteristics of relationships, school achievement, social and sexual behavior.

## Methods

### Study design

We performed a cross-sectional study in a sample of high-school students at a private school in the years 2000 and 2001, whose students had a high socioeconomic level – determined by the frequency of parents who had completed college. All students at the last grade of high school were deemed eligible to the study. Socioeconomic, demographic, family characteristics, school achievement, social and sexual behavior, as well as history of use and consumption of alcohol beverages were obtained by means of a standardized self-reported pre-tested questionnaire. In the questions about drug use, we have adopted the usual name and the jargon by which the drugs are known in Porto Alegre.<sup>8</sup> The absence of identification of the question-

naires assured the anonymity of the respondent, increasing the reliability of the answers. Besides, there were different questions checking the same characteristic (for example, '*ficar*'\*, age of the first sexual intercourse and number of partners), what allowed us to assess the answers' consistency. Although most of the questions were pre-codified, some questions were open in order to allow the specification of details regarding drug use, for example.

### Studied variables

Studied variables were: gender, age, schooling (years), parental schooling, marital status of the parents, number of biological parents living at home, parental and peer relationship, parental characteristics (imposition of limits regarding curfews, sleeping out of home, way of dressing, hair-cut, tattoos or piercing), school achievement (predominant scores in the child's report in that year), concern with college entrance and career, practicing of sports, use and number of internet weekly hours, leisure activities (sports, cinema, television, reading of books, dating) consumption of alcohol beverages (consumption of beverages and alcohol intoxication), smoking (habit and number of smoked cigarettes per day), use of illicit drugs (use, type and number of used drugs) and sexuality ('*ficar*' – physical relations without sexual intercourse, sexual intercourse, age of the first sexual relation, sexual option – heterosexual, bisexual or homosexual; afterwards categorized as heterosexual, yes or no).

The independent variable of interest was birth order, categorized as only-child, first-child and not-first-child. The other independent variables were considered as confounding factors: age, gender, schooling of the father, schooling of the mother, marital status of the parents, number of biological parents living at home, imposition of limits.

Dependent variables were: scores at the school child's report, concern with college entrance and career, practicing of sports, having a boy/girlfriend, parental relationship, surfing in the internet, smoking, drugs use, consumption of alcohol beverages, alcohol intoxication, relation without sexual intercourse and sexual orientation.

### Procedures

Data collection was performed by three medical students, trained to apply the instrument and prepared to explain any doubts, and who supervised the filling of the questionnaires. The questionnaires were applied at schoolroom (before or af-

\*In Brazil, the word '*ficar*' means to be with a partner for one night, just caressing and kissing, without sexual intercourse and it is a normal behavior among adolescents.

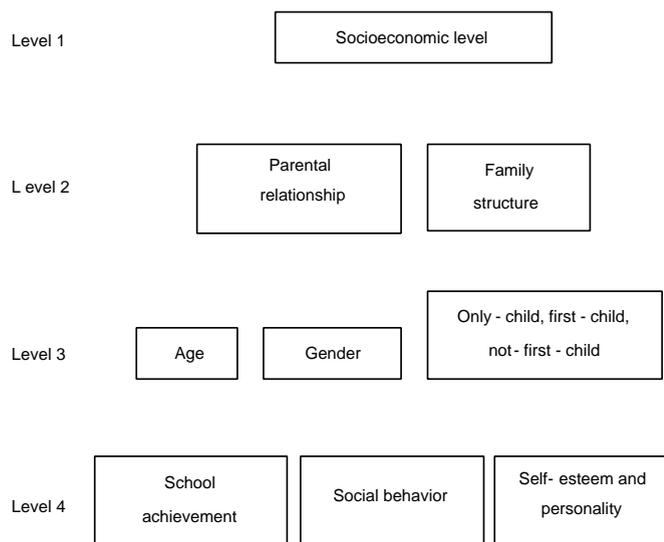


Figure - Hierarchical model of interpretation and analysis.

ter school activities) with the consent of the teachers in charge of these activities. The school board, which authorized the data collection, approved the project and the students were informed about the study, without the mentioning of the hypothesis to be tested, and accepted to participate. The confidentiality of the answers was obtained by means of the anonymous filling of the questionnaires.

**Sample size and data collection**

It was estimated that a sample with 239 adolescents would suffice to detect the 8% prevalence of only-children, with a

95% confidence interval, for a 2%-error. As there were no available data to calculate the sample size to test the hypotheses, we have chosen to enlarge the sample and assess *a posteriori* the power of the study. In the analysis of the data, prevalences and their 95% confidence intervals were calculated and the statistical significance of the associations was tested using the chi-square. Associations with  $p < 0.05$  were considered as statistically significant and those with  $p$  values ranging from 5% to 15% were considered as trends.

The analysis of the effect of being an only-child on the outcomes of interest was based on a hierarchical model which helped in the interpretation of the associations (see Figure 1).<sup>9</sup> The hierarchization of variables starts with the distal determinant (level 1), socioeconomic level – analyzed through parental schooling. As this is a very homogeneous sample for socioeconomic variables, it was decided not to include parental schooling or other variables from this hierarchical level. In the subsequent level there are the variables: parental relationship and family structure, which can also affect the outcomes of interest (for example: school achievement, social behavior). Next, in level 3, there are the characteristics of being only-child, first-child and not-first-child (studied factor), age and gender. The tested hypothesis is that the condition of being an only-child determines the outcomes of interest (level 4), but it is influenced by the adolescent's gender and age and by the hierarchically higher variables.<sup>9</sup> Therefore, when the independent effect of the studied factor was verified, variables associated with birth order in the univariate analysis (gender, age, number of biological parents living at home and limits to the performing of tattoos or piercing) were adjusted.

Table 1 - Distribution of the demographic and socioeconomic characteristics of the adolescents according to birth order.

		% only-child N=29	% first-child* N=125	% not-first-child** N=206
Gender	Male	62.1	49.6	44.7
	Female	37.9	50.4	55.3
P value			.23	.08
Age (years)	15-16	55.2	39.2	39.3
	17	37.9	57.6	57.8
	18-19	6.9	3.2	2.9
P value			.14	.10
Father schooling (years)	6-15	10.7	5.9	10.3
	≥16	89.3	94.1	89.7
P value			.4	.9
Mother schooling (years)	6-15	17.9	11.8	20.7
	≥16	82.1	88.2	79.3
P value			.4	.7
Marital status of the parents	Married	75.9	80.0	76.1
	Separated	6.9	4.0	9.8
	Divorced	13.8	11.2	11.2
	Dead father or mother	3.4	4.8	2.9
P value			.9	.9
Number of biological parents living at home	0	10.3	2.4	2.4
	1	17.2	20.8	23.8
	2	72.4	76.8	73.8
P value			.13	.08

\*P value comparing only-children with first-children

\*\*P value comparing only-children with not-first-children

Following this model, it was performed a logistic regression analysis for each outcome of interest (sexual development – ‘ficar’ and heterosexual option – and social behavior – alcohol intoxication) or multiple lineal regression (school achievement – child’s report scores – and hours surfing in the internet), considering the condition of being an only-child as the independent variable and age, gender, authorization for performing tattoos or piercing and number of biological parents living at home as covariables (confounding factors); only variables with  $p < 0.2$  were inserted in the model.

**Results**

There were included 360 students (96% of the total) who were present in the days of data collection. There were no refusals to participate. The sample was composed by 52.2% of female adolescents, 56.1% were 17 years of age, 8.1% were only-children, 34.7% first-children and 57.2% of adolescents had siblings and were not-first-children.

Table 1 shows that only-children were more frequently males and aged 15 to 16 years, comparatively to the others who were predominantly females and aged 17 years. The great majority of the adolescents’ parents had finished college. Only-children and not-only-children did not differ significantly regarding their parents’ marital status. Most adolescents lived with both biological parents, but 10.3% of only-children lived with grand-parents, comparatively to 2.4% of first-children and not-first-children.

The relationship with parents was assessed by means of the question: ‘How is your relationship with your parents?’, and there were five options of answers: excellent, good, satisfactory, bad and awful. A large majority of students answered that they had a good or excellent relationship with their parents (87%). The question about how adolescents would like their parents to be showed a significant difference only between first- and only-children, as 76% of only-children would like their parents to be as they actually were (vs 69% of first-children), 17%, that their parents were more flexible (vs 30%) and 7%, more concerned (vs 1%) ( $P=0.047$ ).

Regarding the posing of limits by parents in the adolescents’ lives, approximately 31% of the parents used to impose a curfew, 36% restricted the habit of sleeping out of home, 17% controlled their friendships, 13% interfered with their way of

dressings, 7% with the length of their hair and 54% with the performing of tattoos or piercing. There were no significant differences between the three groups regarding these variables, except for the permission to put piercing or tattoos (37.9% of only-children vs 57.6% of first-children,  $P=0.056$ , and vs 53.7% of not-first-children,  $P=0.11$ ).

Although we have not detected significant differences between the groups regarding concerns with college entrance or with the career, of note, in Table 2, the predominance of scores between 9 and 10 (17.2%) of only-children, as compared to first-children (5.6%) and not-first-children (2.9%).

The activities performed at leisure time were quite similar between adolescents who were only-children to those who were first-children and not-first-children; 90% went to the movies, 89% watched television, 45% read books, 97% went out with friends and 62% dated. Of note, in Table 3, the practicing of sports and the presence of a girl/boyfriend did not differ significantly between only-children, first-children and not-first-children, but the number of hours surfing in the Internet did differ.

The frequency of smoking was 19.2%, but it did not differ significantly between only-children, first-children and not-first-children. Near to 71% of subjects reported consumption of alcoholic beverages, being more frequent among first-children and not-first-children than among only-children (Table 3). These differences became more evident regarding the report of alcoholic intoxication, in which near to 39.3% of only-children reported episodes of alcoholic intoxication versus 68.9% of first-children ( $P=0.03$ ) and 72.3% of not-first-children ( $P < 0.001$ ). Of the subjects, 28.6% were users of illicit drugs, be they as current (15.6%) or former users (13.0%). Globally, 22.5% reported the use of cannabis, 11.4%, of solvents (11.1%, perfume squirter and 0.3%, of benzine), 0.6%, of cocaine, 0.6%, of hallucinogens and 1.7% mentioned more than three different drugs. Of note, in Table 3, there was no statistically significant difference in the frequency of use of illicit drugs according to birth order.

Aspects related to the stages of the subjects’ sexuality were also investigated (Table 3). The practice of sexual activities without sexual intercourse (‘ficar’) was less frequent among only-children (86.2%) than among first-children (97.6%) and among not-first-children (97.6%). The sexual definition as

**Table 2 - Association of the condition of being or not only-child with school achievement and expectations about the future career.\***

		% only-child N=29	% first-child* N=125	% not-first-child** N=206
Predominant scores at the child's report	9.0-10	17.2	5.6	2.9
	7.0-8.9	48.3	70.4	57.8
	6.0-6.9	34.5	24.0	36.9
	<6.0	0	0	2.4
P value		.03	.006	
Concern with college entrance		79.3	88.7	84.4
P value			.2	.5
Concern with the career		58.6	71.8	70.7
P value			.2	.2

\*P value comparing only-children with first-children

\*\*P value comparing only-children with not-first-children

**Table 3 - Association of the condition of being or not an only-child with behavioral and sexual characteristics.\***

	% only-child N=29	% first-child* N=125	% not-first-child** N=206
Practicing of sports	86,2	76,0	81,6
P value		0,2	.5
Current boy-girlfriend	24,1	24,8	22,5
P value		0,9	.9
Surfing in the internet (hours/week)			
0	24,1	20,0	28,0
<1	41,4	56,7	54,0
2	13,8	15,0	10,6
≥3	20,7	8,3	7,4
P value		.06	.01
Smoking			
No	82,8	77,6	77,9
Former-smoking	10,3	15,2	13,2
Smoking	6,9	7,2	8,8
P value		.8	.8
Consumption of alcoholic beverages	58,6	73,6	77,2
P value		.11	.03
Alcoholic intoxication	39,3	68,9	72,3
P value		.03	<.001
Use of illicit drugs	21,4	24,8	31,9
P value		.7	.3
'Ficar'	86,2	97,6	97,6
P value		.03	.01
Sexual intercourse	51,7	47,6	48,0
P value		.6	.7
Heterosexual option	86,2	92,8	96,1
P value		.,3	.02

\*P value comparing only-children with first-children

\*\*P value comparing only-children with not-first-children

homo or bisexual – non heterosexual – was mentioned in higher proportion by only-children, first-children and not-first-children, respectively. Although there were no significant differences in the proportion of adolescents who started their active sexual life between the groups, the age of the first sexual intercourse was significantly lower among only-children (13.9±7 years) than among first-children (15.0±1.1 years, P=0.001) and not-first-children (15.2±1.2 years, P=0.01).

In Table 4, of note, first-children and not-first-children present an approximately four- to five-fold chance than only-children of having had an alcoholic intoxication, regardless of age, gender, number of biological parents living at home and paternal limitation to the performing of piercing or tattoos. Regarding physical relations without sexual intercourse, first-children and not-first-children had nearly six-fold chances of having already experienced that practice than only-children. On the other hand, not-first-children declared themselves as heterosexuals more frequently than only-children, persisting the effect even after the control for confounding factors. On the other hand, the use of illicit drugs, remained not associated to the birth order, even adjusting to confounding factors (P=0.3).

Considering the confounding effects of covariables, the analysis of the effect of birth order on the achievement of

school scores showed a positive association only for only-children when compared to not-first-children (beta =2.47; CI 95% =0.08 to 4.85; P=0.04), but not for first-children (beta =0.92 CI 95% -1.36 to 3.19; P=0.4). That is, only-children showed a better school achievement than not-first-children. The independent effect of the birth order on the number of hours spent surfing in the internet was also analyzed, constituting an independent and significant association for only-children as compared to not-first-children (beta =0.78 CI 95% 0.23 to 1.33; P=0.006) and to first-children (beta =0.67 CI 95% 0.02 to 1.33; P=0.04).

## Discussion

In this article, we compared the characteristics of only-children with that of first-children and not-first-children in a homogeneous sample of adolescents from a private school. The selection of students from the third grade of high school assured the similarity regarding age range, pubertal development, and, as they pertained to the same school, socioeconomic level and social behaviors, reducing the probability that characteristics of the school could affect the school achievement. One of the advantages of restricting the study to this profile of students is that socioeconomic differentials are less probable of

**Table 4 - Effect of the association between birth order and behavioral and sexual aspects in a multiple logistic regression (Odds ratio and 95%CI)\***

	Alcoholic intoxication	'Ficar'	Heterosexual option
Only-child	1.00	1.00	1.00
First-child	4.02 (1.65-9.78)	6.35 (1.26-31.93)	3.09 (.82-11.73)
Not-first-child	4.98 (2.10-11.77)	6.51 (1.54-27.93)	5.75 (1.50-22.05)
P value	.001	.024	.038

\*Odds ratio adjusted for: age, gender, number of biological parents living at home, limitation to the performing of tattoos or piercing.

restricting social behaviors and confounding the associations.<sup>10</sup> Besides, by the age of the students it is possible that the family structure had been already defined. On the other hand, this sample is not representative of adolescents pertaining to the general population, as only 6% of the population of Porto Alegre pertain to the upper class.<sup>11</sup>

Other limitation of the study is the possibility that in some associations occurred a beta error, i.e., the study had not the power of detecting them as statistically significant. For example, when testing the association between birth order and consumption of alcoholic beverages, the power to compare only-children with first-children was 41%, considering  $p=0.11$  as representing a trend to significance.

The demographic characteristics of the sample indicate the predominance of females and students aging 15 to 17 years. The high socioeconomic level is evidenced by the high rate of fathers (89% or more) and mothers (79% or more) who completed college and it has not differed significantly between only-children, first-children and not-first-children.

The 8.1% prevalence of only-children agrees with the reduction of the mean size of the families, detected by the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística),<sup>12</sup> particularly among families with higher socioeconomic level.

#### School achievement

In this study we found a better school achievement in only-children than that in not-first-children,<sup>5</sup> but we could not detect independent and significant characteristics between only-children and first-children.<sup>13</sup> The inverse association between birth order and school achievement<sup>14</sup> is corroborated by the better school achievement of only-children,<sup>15</sup> in different families and environments.<sup>16</sup>

#### Relationship with other people

The description that only-children live predominantly together with adults in their first childhood suggests that they are more mature and assume earlier adult behaviors<sup>6</sup> than the others. In this study, the concerns with college entrance and career were similar among first-children, not-first-children and only-children.

Contrarily to the impression that first-children tend to be different from the others,<sup>13,17</sup> this study have not detected differences between only-children, first-children and not-first-children regarding the relationship with the parents, presence of a boy/girlfriend and practicing of sports. The differences appeared in some activities performed for leisure. For instance, only-children spent more time in the Internet, an individual activity without personal interaction, than first-children and children with siblings. The other leisure activities (going to the movies, dancing, and reading) were similar among them.

#### Smoking, alcohol and drugs

Before considering the association of the characteristics of social behavior with birth order, we compared the prevalences with other studies. In this study we detected a lower preva-

lence of smoking (19.2%) than the use of illicit drugs (28.6%) and consumption of alcoholic beverages (70.8%). Although with different magnitudes, this same ascending consumption order was verified among students of public schools of São Paulo (50%, 53.1% and 85.2%, respectively)<sup>18</sup> and Cuiaba (29%, 34.5% and 78.6%, respectively).<sup>19</sup> The differences in the type of consumed illicit drugs are related to the type of school, neighborhood and socioeconomic profile of the students,<sup>20</sup> besides other characteristics. In São Paulo, there has been a higher use of cannabis (46%), inhalants (28.2%), cocaine (17.8%), whereas in Cuiaba, among students aged 16 to 18 years, the order was inhalants (15.2%), cannabis (6.6%), anxiolytics (6.6%) and cocaine (2.5%). Our results regarding the type of used illicit drugs were similar to those described in a sample of students, representative of the city of Pelotas (18.1% cannabis, 13.5% inhalants, 4.2% cocaine, 1.8% hallucinogens).<sup>21</sup> It is possible that the prevalence and the type of drug be strongly associated with the socioeconomic level,<sup>19,21</sup> more than with specific characteristics such as birth order, not related to the use of drugs in this study.

The prevalence of consumption of alcoholic beverages among students is high,<sup>21</sup> above 75% in several Brazilian capitals.<sup>22</sup> Alcoholic beverages consumption, particularly alcoholic intoxication, differed significantly between only-children, first-children and not-first-children, being more remarkable the differences between only-children and not-first-children. Perhaps a higher direct parental supervision due to a smaller number of children at home might explain this lower number of alcoholic intoxication among only-children.

#### Sexual development

The subjects' characteristics of sexual development that were detected in this study (96.7% 'stayed - *ficaram*', 48.2% had sexual intercourse, 94.2% had identified themselves as heterosexuals) are similar to those previously described for high school students in Porto Alegre, where 42.4% had sexual intercourse and 93.6% had identified themselves as heterosexuals.<sup>23</sup>

In this study, it was noteworthy the lower prevalence of adolescents self-identified as heterosexuals among only-children compared to not-first-children. Not-yet-resolved bisexuality or the identity suggested as homosexual does not seem to be the result of confusion with age and gender. As the previous literature suggests that the homosexual identity seems to be associated with a higher number of siblings and with a greater boys/girls rate among siblings,<sup>24</sup> it is possible that our findings reflect more an association between only-children with a greater time for the maturing of a heterosexual identity than an association with an established homosexual identity proper. New studies are needed for a better understanding of these associations.

In conclusion, adolescents investigated in this study showed a similar pattern to that previously described for behaviors such as smoking, drugs use, consumption of alcoholic beverages, sexual initiation, and heterosexuality. Only-children showed some characteristics different from first-children and from children who have siblings and are not first-children. Stood out the

better school achievement, not being exposed to alcoholic intoxication and a good relationship with the parents. The number of hours spent in individual activities such as the use of the Internet and lower sexual definition rate are some of the differences of children who have not siblings. On the other hand,

differences of mature behaviors, practicing of sports, interaction with friends and leisure activities according to birth order were not confirmed. Therefore, the findings of this study suggest that being an only-child not seems to be associated with a worse evolution in several assessed development areas.

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