

Are healthy children attended by Family Physicians or Pediatricians?

Determinants of an important decision.

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Introduction:

In the United States, the ratio of children's health care provided by Family Physicians (FPs) decreased by about 33% between 1992 and 2002, from one in four children to one in six.¹ At the same time, there was an increase in the number of visits provided by Pediatricians.¹ In Portugal, the National Program for Child and Juvenile Health establishes 18 surveillance consultations at specific ages, 13 of them on the first 6 years of life.² Even though in Portugal there are no official numbers, it is clear that the number of children who are simultaneously attended by Pediatricians in private care is rising. Therefore, the main objectives of our study were to determine if children attend the FP or the FP/Pediatrician for their surveillance consultations, as well as the variables associated with the parents' choice between the two physicians.

Methods:

A cross-sectional survey was applied to the Parents of children aged 6 years old or less, without chronic diseases, enrolled in public, semi-private and private kindergartens in the city of Vila Nova de Famalicão. The questionnaire was designed by the investigators and consisted of two parts: the first comprised direct questions about the sociodemographic characteristics related to parents, children and the household. The second part consisted of statements about accessibility and knowledge, regarding the Family Physician and the Pediatrician, to be rated according to a Likert scale. We excluded children with chronic diseases followed by Pediatricians in public hospitals; those up to 2 years old who had a Pediatrician but did not attend their services; children who did not have a FP; and those who

had a FP but did not attend their services. According to national statistics³⁻⁴, in September of 2015, there were 4989 children enrolled in the kindergartens in the municipality of Vila Nova de Famalicão. We determined a minimum sample size of 536 valid questionnaires using *OpenEpi* (prevalence 50%; confidence interval (CI) 95%; design effect 1.5). We considered that the number of delivered questionnaires should be three times greater in order to deal with non-delivered questionnaires and the exclusion criteria, that could not be anticipated.

Results:

A total of 1539 questionnaires were delivered, 1138 were collected and 697 were included in the analysis. Of our sample, 213 children (30.6%) attended only the FP and 484 (69.4%) attended both the FP and the Pediatrician. We found significant differences between the two groups for all the variables (table 1), except for the father's age. Using a multivariate binary logistic regression, the mother's age and educational level, household net income, private health insurance, number of children and children's age remained significantly associated with attending both physicians (table 2). Regarding the parents' perception about accessibility and clinical knowledge of the physicians, we found statistical differences between the two groups (table 3).

Table 1| Sociodemographic and household characteristics of the participants (n=697)

	Total n= 697	FP group n= 213	FP/Pediatrician group n= 484	p-value
Mother's age (years)				
Mean ± SD	34.43 ± 4.96	33.61 ± 5.71	34.81 ± 4.49	0.005
Mother's education				
Without higher education	468 (67.4%)	190 (89.6%)	278 (57.7%)	<0.001
With higher education	226 (32.6%)	22 (10.4%)	204 (42.3%)	
Mother's professional situation				
Not active	94 (13.5%)	46 (21.7%)	48(10.0%)	<0.001
Active	600 (86.5%)	166 (78.3%)	434 (90.0%)	
Mother's marital status				
Single	56 (8.1%)	27 (12.7%)	29 (6.0%)	<0.001
Divorced/separated	31 (4.5%)	16 (7.5%)	15 (3.1%)	
Married/cohabiting couples	608 (87.5%)	170 (79.8%)	438 (90.9%)	
Father's age (years)				
Mean ± SD	36.72 ± 5.30	36.36 ± 6.01	36.91 ± 4.96	0.331
Father's education				
Without higher education	556 (80.9%)	194 (94.6%)	362 (75.1%)	<0.001
With higher education	131 (19.1%)	11 (5.4%)	120 (24.9%)	
Father's professional situation				
Not active	52 (7.6%)	27 (13.2%)	25 (5.2%)	0.002
Active	634 (92.4%)	177 (86.8%)	457 (94.8%)	
Father's marital status				
Single	51 (7.4%)	23 (11.2%)	28 (5.8%)	<0.001
Divorced/separated	35 (5.1%)	15 (7.3%)	20 (4.1%)	
Married/ cohabiting couples	602 (87.5%)	167 (81.5%)	435 (90.1%)	
Household net income*				
≤500€	39 (5.8%)	24 (11.8%)	15 (3.2%)	<0.001
501 to 999€	225 (33.5%)	106 (52.0%)	119 (25.5%)	
1000 to 1999€	318 (47.4%)	70 (34.3%)	248 (53.1%)	
≥2000€	89 (13.3%)	4 (2.0%)	85 (18.2%)	
Private health insurance				
No	449 (64.6%)	184 (86.8%)	265 (54.9%)	<0.001
Yes	246 (35.4%)	28 (13.2%)	218 (45.1%)	
Household size†				
Mean ± SD	3.63 ± 0.78	3.79 ± 0.82	3.57 ± 0.75	<0.001
Number of children‡				
Mean ± SD	1.66 ± 0.72	1.84 ± 0.79	1.58 ± 0.672	<0.001
Child's age (months)				
Mean ± SD	48.02 ± 19.65	52.08± 18.31	46.23 ± 19.98	<0.001

*500€ corresponds to approximately one national minimum wage; †Number of people living in the same house. ‡Total number of children of both parents. SD: standard deviation; FP: Family Physician.

Conclusion:

Our data shows that Family Physicians still play an important role on children's follow-up, even though approximately 70% of our sample simultaneously attended a Pediatrician. We identified variables associated with the parents' choice in the medical care of their children, with household net income and private health insurance being the most relevant ones. Our results are supported by the *Robert Graham Center* study¹ findings: the proportion of children attending the Pediatrician decreases as the child grows older and children with private health insurance are more likely to attend the Pediatrician. To our knowledge, there are no previous studies available regarding the factors associated with parents' choice in the medical care of their children, so this is the first one addressing this important subject. The main limitation was that we could only determine the variables associated with attending the FP or the Pediatrician, but not the causes of this

Table 2| Binary logistic regression for determination of variables associated with FP and FP/Pediatrician group.

Independent variables	OR	95% CI for OR	p-value
Mother's age (years)	1.06	1.02-1.11	0.05
Mother's education			
Without higher education	1	—	—
With higher education	2.52	1.46 - 4.34	0.001
Household net income			
≤500€	1	—	—
501 to 999€	1.36	0.57 - 3.26	0.496
1000 to 1999€	2.78	1.15 - 6.75	0.024
≥2000€	12.14	3.12 - 42.27	<0.001
Private health insurance			
No	1	—	—
Yes	4.18	2.55 - 6.84	<0.001
Number of children‡	0.56	0.42 - 0.75	<0.001
Child's age (months)	0.98	0.97 - 0.99	0.002
Hosmer and Lemeshow test	5.49 (8), p=0.704		
R2 (Nagelkerke)	35%		
ROC Curve	AUROC = 0.81 (0.78 - 0.85), p<0.001		

‡Total number of children of both parents. ROC: Receiver Operating Characteristic. AUROC: Area Under the ROC Curve; OR: Odds Ratio. CI: Confidence interval.

Table 3| Parents' perception on accessibility and knowledge of the Family Physician and the Pediatrician.

	Items about Knowledge related to the:		Items about Accessibility related to the:	
	Family Physician	Pediatrician	Family Physician	Pediatrician
Participants with Family Physician	4.22 ± 0.75*	----- (a)	2.90 ± 1.09*	----- (a)
Participants with Family Physician and Pediatrician	3.70 ± 0.88*	4.11 ± 0.87*	2.38 ± 1.10*	4.29 ± 0.78*
	p<0.001	p<0.001	p<0.001	p<0.001

*mean ± standard deviation; (a) - did not have a Pediatrician

decision because causality can not be evaluated due to the study design. Unlike Pediatricians, the role of FPs is still unclear to most parents since they rated the FP with a lower clinical knowledge mean than the Pediatrician. However Family Physicians and Pediatricians are equally qualified to provide medical care to children without chronic diseases, with the advantage that costs associated with the same surveillance consultations are lower when carried out in Primary Health Care.⁵⁻⁶ Additional investigation is relevant to understand if children's medical care provided simultaneously by a Pediatrician and a FP is associated with health benefits and higher public health costs when compared to medical care provided exclusively by the FP.

References:

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