



ORIGINAL ARTICLE

Parental tobacco consumption and child development[☆]



Nadine F. Santos^{a,*}, Raquel A. Costa^{a,b}

^a Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal

^b Universidade Europeia Laureate International Universities, Lisbon, Portugal

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KEYWORDS

Psychomotor
development;
Tobacco use;
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Abstract

Objective: To analyze the association between parental tobacco consumption and the prevalence of psychomotor development disorders in children between 6 and 22 months of age.

Method: One hundred and nine mothers, fathers, and their babies participated in the study. The sociodemographic and clinical conditions were assessed using questionnaires. Tobacco consumption was assessed using the Fagerström Test for Nicotine Dependence (FTND). Child development was evaluated using the Scale of Psychomotor Development in Early Childhood.

Results: There was a significant negative correlation between the father's morning smoking (FTND) and the child's language development quotient; $r = -0.41$, $p = 0.005$, $r^2 = 0.15$. The children of mothers without nicotine dependence had a higher mean language development quotient than children of mothers with nicotine dependence; $F(1, 107) = 5.51$, $p = 0.021$, $\eta_p^2 = 0.05$.

Conclusion: Parental smoking appears to have a detrimental effect on child development.

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PALAVRAS-CHAVE

Desenvolvimento
psicomotor;
Consumo de tabaco;
Parentalidade

Consumo de tabaco parental e desenvolvimento infantil

Resumo

Objetivo: Analisar a relação entre o consumo de tabaco parental e a prevalência de distúrbios no desenvolvimento psicomotor em crianças entre os seis e os vinte e dois meses de idade.

Método: Cento e nove mães, pais e seus bebês participaram no estudo. As circunstâncias sociodemográficas e clínicas foram avaliadas com recurso a questionários. O consumo de tabaco foi avaliado utilizando o Teste de Fagerström para a Dependência Tabágica (Heatherton, Kozlowski, Frecker, & Fagerström, 1991). O desenvolvimento infantil foi avaliado utilizando a Escala do Desenvolvimento Psicomotor da Primeira Infância (Brunet & Lézine, 1951).

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* Corresponding author.

E-mail: nadifernandessantos@gmail.com (N.F. Santos).

Resultados: Há uma correlação negativa significativa entre o fumo matinal (FTND) do pai e o quociente de desenvolvimento de linguagem da criança, $r = -0,41$, $p = 0,005$, $r^2 = 0,15$. As crianças de mães sem dependência tabágica têm em média um quociente de desenvolvimento de linguagem superior às crianças de mães com dependência tabágica, $F(1,107) = 5,51$, $p = 0,021$, $\eta_p^2 = 0,05$.

Conclusão: O consumo de tabaco parental parece ter um efeito prejudicial para o desenvolvimento da criança.

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Introduction

Development in the first years of life is essential. Several environmental factors, such as the parental consumption of substances, can increase the likelihood of developmental difficulties in childhood,¹ especially in the emotional, educational,² social, behavioral, and psychological levels.³ Tobacco consumption, specifically—which has high prevalence in Portugal (22%)⁴—is an important public health problem, and has been associated with difficulties in self-regulation; increased excitability and activation in the neonatal period;⁵ lower birth weight;^{6,7} learning difficulties;⁶ lower volume of the frontal and cerebellar lobes—responsible for emotional functioning, impulse control, and attention;⁸ smaller head circumference;⁹ cognitive and language neurodevelopmental disorders;^{10,11} and childhood emotional and behavioral disorders.⁶ This association can be explained by the fact that during childhood, the brain continues to develop and is particularly sensitive to environmental pollutants,⁶ or by brain disorders resulting from exposure to nicotine during pregnancy.⁸

As environmental risk factors appear to be related to children's developmental disorders, especially motor, language, social, cognitive, behavioral, and psychological disorders, the study of psychomotor development associated to these factors is the aim of this study. Although there is a great deal of literature related to child development, the association between tobacco use by both parents and psychomotor development is still largely unknown. Therefore, this study differs from previous studies due to the fact that (1) it analyzes several aspects of child development - posture, language, visual-motor coordination, and social—rather than being limited to overall development; (2) most studies focus on the effects of this consumption on children's health, and/or during pregnancy and not after it; (3) both parents were considered.

Methods

Participants

Participants were recruited from four day care centers located in the city of Funchal-Madeira, Portugal, after authorization by the Direção Regional de Educação (Regional Education Board). Most of the participants were of Portuguese origin (94.3%) and white (98.0%).

Participation in the study was proposed to 124 mothers and 124 fathers; 87.9% agreed to participate, 9.3% refused

to participate due to lack of free time, and 2.8% were not interested in participating. Thus, the sample consisted of 109 mothers, 109 fathers, and 109 babies. The sample inclusion criterion was: (1) to be the mother/father of a child aged between 6 and 22 months; the exclusion criteria were: (1) illiteracy and (2) the existence of diseases in the babies. The study was performed during 2011 and the data collection phase lasted three months.

Tools

Sociodemographic and clinical data

A questionnaire was used to collect social and demographic data (age, gender, marital status, years of education, professional status, physical and psychological diseases, medical or psychological treatment, number of pregnancies, number of miscarriages, number of children, age of children, and children's physical and psychological diseases), as well as clinical information on the pregnancy and newborn (pregnancy planning, prenatal care, risk pregnancy, gestational age, type of delivery, type of anesthesia, Apgar score, weight and height, head circumference, reanimation, health problems at birth, current sleep pattern—monophasic (long periods of continuous sleep) vs. biphasic (alternation between periods of sleep and wakefulness), and type of feeding.

Nicotine dependence

Fagerström Test for Nicotine Dependence (FTND)^{12,13}

This test was developed to compensate for the psychometric limitations of the Fagerström Tolerance Questionnaire,¹² and aims to measure the nicotine dependence of an individual.¹³ It consists of six items related to smoking habits and behaviors, rated on a Likert scale ranging from 0-3 points. Higher results indicate a greater smoking dependence,¹⁴ in which a score of 0-3 indicates absence of nicotine dependence, 4-6 indicates moderate nicotine dependence, and ≥ 7 indicates severe nicotine dependence. The Portuguese version has acceptable psychometric properties, with Cronbach's $\alpha = 0.66$.¹³ Test-retest reliability was ensured by correlation values of the original scale of 0.99. Factor analysis showed the existence of two factors: (1) cigarette consumption—daily consumption patterns—and (2) morning smoking - degree of urgency to restore the level of nicotine after the nighttime abstinence.¹³ In the present study, this tool had an acceptable internal consistency, with Cronbach's $\alpha = 0.73$.

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