

ORIGINAL ARTICLE

EVALUATION OF CHILD MOTOR DEVELOPMENT IN HIGH-RISK CHILDREN*
AVALIAÇÃO DO DESENVOLVIMENTO MOTOR INFANTIL EM CRIANÇAS DE ALTO RISCO
EVALUACIÓN DEL DESARROLLO MOTOR INFANTIL EN NIÑOS DE ALTO RIESGO

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ABSTRACT

Objective: to assess the quality of life and development of children stratified as high risk. **Method:** this is a quantitative, descriptive, exploratory, cross-sectional study at the Maternal and Child Care Center, with 101 children who used questionnaires to collect data, analyzed and processed in the Epiinfo program, using the Kruskal-Wallis (95% confidence) and Cramer's OV. **Results:** a positive association was identified between the score of suspected delay in neuro-psychomotor development and the education level of the guardian ($p = 0.000$), family income ($p = 0.000$), age group ($p = 0.012$), time of intervention at birth ($p = 0.029$) and food ($p = 0.003$). **Conclusion:** it is concluded that high-risk children are related to several factors that can cause developmental delay or a low quality of life. However, there is a need for further studies on the subject. **Descriptors:** Family Health; Quality of Life; Child Development; Nursing; Child Health; Denver II.

Resumo

Objetivo: avaliar a qualidade de vida e o desenvolvimento de crianças estratificadas como de alto risco. **Método:** trata-se de um estudo quantitativo, descritivo, exploratório, transversal, no Centro de Atendimento Materno Infantil, com 101 crianças em que se utilizaram para a coleta de dados questionários, analisados e processados no programa Epiinfo, com o uso do teste de Kruskal-Wallis (95% de confiança) e O V de Cramer. **Resultados:** identificou-se a associação positiva entre o escore de suspeita de atraso no desenvolvimento neuropsicomotor e a escolaridade do responsável ($p=0,000$), renda familiar ($p=0,000$), faixa etária ($p=0,012$), tempo de intervenção ao nascimento ($p=0,029$) e alimentação ($p=0,003$). **Conclusão:** conclui-se que as crianças de alto risco estão relacionadas a diversos fatores que podem gerar atraso no desenvolvimento ou uma baixa qualidade de vida. Ressalta-se, contudo, a necessidade de novos estudos acerca do tema. **Descritores:** Saúde da Família; Qualidade de Vida; Desenvolvimento Infantil; Enfermagem; Saúde da Criança; Denver II.

Resumen

Objetivo: evaluar la calidad de vida y el desarrollo de los niños estratificados como de alto riesgo. **Método:** este es un estudio cuantitativo, descriptivo, exploratorio, transversal en el Centro de Atención Materno Infantil, con 101 niños que utilizaron cuestionarios para recopilar datos, analizados y procesados en el programa Epiinfo, utilizando la prueba de Kruskal-Wallis (95% de confianza) y Cramer's OV. **Resultados:** se identificó una asociación positiva entre la puntuación de sospecha de retraso en el desarrollo neuropsicomotor y el nivel educativo del tutor ($p = 0.000$), ingresos familiares ($p = 0.000$), grupo de edad ($p = 0.012$), tiempo de intervención al nacer ($p = 0.029$) y alimentación ($p = 0.003$). **Conclusión:** se concluye que los niños de alto riesgo están relacionados con varios factores que pueden causar retraso en el desarrollo o una baja calidad de vida. Sin embargo, se enfatiza la necesidad de más estudios sobre el tema. **Descritores:** Salud Familiar; Calidad de Vida; Desarrollo Infantil; Enfermería; Salud Infantil; Denver II.

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INTRODUCTION

It is known that child development is a continuous and dynamic process that promotes changes in the physical, social, emotional and cognitive areas, consolidating a complex interaction between them and the environment, in which each stage is built from the previous stages.¹

Neuro-psychomotor development is associated with the maturation of the Central Nervous System (CNS), comprising four major fields: broad motor; thin motor (adaptive); social and linguistic. It is pointed out, however, that the skills that make up each field appear in sequence: the simplest skills serve as the basis for the most complex ones, being important to understand and distinguish them. It is understood that, as the primitive reflexes are inhibited, the child acquires new skills within the four fields mentioned, reaching the developmental milestones. It is noted that each individual has their own growth rate, being expected not to drastically depart from the pattern observed for their age, among other established criteria.²

Currently, it is pointed out that several instruments have been used to assist in the monitoring of child development, most of which originated from other countries, such as the Denver II Development Screening Test, which is easy to apply and can be used by any health professional. It is a screening test that assesses the four areas of development: personal-social; fine motor; coarse language and engine.³

The Children's Quality of Life (TAPQOL) questionnaire is considered to have been developed to assess the quality of life of children aged six months to six years, with four domains and a validated Brazilian version.⁴ It consists of 46 items, with sub-items A and B, divided into four areas: motor / physical; Social; cognitive and emotional. This questionnaire is further divided into two age groups: the first, from eight to 18 months, and the second, from 18 months to five years of age, however, several authors defend its use after two months of age, without causing damage to its application.

In the literature, there is a scarcity about the correlation between the child's quality of life and his development. This work is justified by the need for a more complete and integral attention to the child in this age group, seeking to intervene as soon as possible so that, thus, have more satisfactory results, providing equal and quality care.

OBJECTIVE

- To assess the quality of life and development of children stratified as high risk.

METHOD

This is a quantitative, descriptive, exploratory, cross-sectional study. The research was carried out at the Center for Specialized Maternal and Child Care (CEAMI), located in the city of Caxias, Maranhão, Brazil. It is pointed out that CEAMI is a municipal health service responsible for monitoring pregnant women and high-risk children. The circuit of care in Pediatrics is composed by the following professionals: Nursing technician; nurse; pediatrician; physiotherapist; nutritionist; speech therapist; psychologist and social worker.

The sample of this research was constituted by 101 children and their parents and / or guardians. The inclusion criteria were: children aged between two and 24 months; referred through their reference Basic Health Units; stratified as high risk; in attendance at CEAMI for the first time; with parents and / or guardians able to understand the questionnaires. Returned children were excluded, stratified as medium or low risk and from a municipality that is not part of the health macro-region of Caxias. Data collection was carried out between August 2018 and July 2019.

Data collection was performed through the application of four forms. Initially, the form was applied to trace the socioeconomic profiles of the children and caregivers, as well as the clinical profile of the children included in the research. The child's quality of life and risk stratification (low, medium and high risks) were also assessed.

The Denver II test was then used. It is a quick and easy to use instrument, with a high sensitivity and a high degree of reliability when assessing the development of children up to six years old. It consists of 125 items divided into four domains: the personal-social (25 items) encompasses aspects of the child's socialization inside and outside the family environment; fine motor skills (29 items) assess eye-hand coordination and manipulation of small objects; language (39 items) assesses the ability to produce sound and recognize, understand and use language and, finally, broad motor skills (32 items) assesses body motor control, sitting, walking, jumping and other movements.⁵

The data collected in the Epiinfo program was inserted and the information was organized in tables, using the Kruskal-Wallis test (95% confidence) and Cramer OV, which measures the association between two variables (the line variable and the column variable). It is recorded that the values of V vary between zero and one. It is known that the high values of Cramer's V indicate a stronger relationship between the variables, the lower values indicate a weak relationship, a null value indicates that there is no

association and a value of one indicates that there is not a very strong association between variables.

Data collection was preceded by the approval of the research by the Ethics and Research Committee (REC) of the State University of Maranhão (UEMA) under the number 3,101,286.

RESULTS

It is understood that the sociodemographic profile of the parents showed the prevalence of children classified as high risk, daughters of parents or under the responsibility of females (96.0%), aged between 18 and 28 years (38.6%), who completed high school (50.5%) and claimed to

have a stable union (37.6%). It was found that the profession of the head of the family that proved to be more prevalent corresponded to the variable "other" (48.6%), associated with a family income between one and two minimum wages (53.5%). It appears that most of those responsible said they received government assistance from the Bolsa Família program (56.4%). It was identified that the highest percentage resides in Caxias (MA) (69.3%), most commonly in the urban area (83.2%). The Denver II test showed a significant association ($p < 0.05$) with the variables education and income (Table 1).

Table 1. Association between the sociodemographic variables of the guardians and the result of the Denver II test of the children. Caxias (MA), Brazil, 2019.

Variables	Delay	Care / Caution	Adequate	Advanced	Cramer's V (p-value*)
Sex					
Female	100.0 (29/101)	100.0 (4)	93.9 (62)	100.0 (2)	1.48 (0.530)
Male	0.0 (0)	0.0 (0)	6.1 (4)	0.0 (0)	
Age group					
Under 18	0.0 (0)	50.0 (2)	6.1 (4)	0.0 (0)	0.281 (0.067)
From 18 to 25 years	51.7 (15)	25.0 (1)	34.8 (23)	0.0 (0)	
From 26 to 33 years old	27.6 (8)	0.0 (0)	34.8 (23)	50.0 (1)	
From 34 to 42 years old	13.8 (4)	25.0 (1)	22.7 (15)	50.0 (1)	
From 43 to 50 years old	3.4 (1)	0.0 (0)	1.5 (1)	0.0 (0)	
Above 50 years	3.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	
Education					
Illiterate	10.3 (3)	0.0 (0)	1.5 (1)	0.0 (0)	0.335
Elementary School	51.7 (15)	75.0 (3)	24.2 (16)	0.0 (0)	
Highschool	37.9 (11)	0.0 (0)	60.6 (40)	0.0 (0)	
Higher Education	0.0 (0)	25.0 (1)	13.6 (9)	100.0 (2)	
Marital Status					
Married	31.0 (9)	0.0 (0)	27.3 (18)	0.0 (0)	0.228 (0.071)
Stable Union	34.5 (10)	50.0 (2)	39.4 (26)	0.0 (0)	
Single	34.5 (10)	50.0 (2)	28.8 (19)	50.0 (1)	
Divorced	0.0 (0)	0.0 (0)	4.5 (3)	50.0 (1)	
Profession					
Farmer	31.0 (9)	25.0 (1)	27.3 (18)	0.0 (0)	0.188 (0.557)
Autonomous	10.3 (3)	0.0 (0)	7.6 (5)	0.0 (0)	
Retired	13.8 (4)	25.0 (1)	4.5 (3)	0.0 (0)	
Unemployed	13.8 (4)	0.0 (0)	6.1 (4)	0.0 (0)	
Others	31.0 (9)	50.0 (2)	54.5 (36)	100.0 (2)	
Income					
Less than one salary	24.1 (7)	50.0 (2)	42.4 (28)	0.0 (0)	0.454 (0.000**)
1 to 2 salary	69.0 (20)	25.0 (1)	48.5 (32)	50.0 (1)	
2 to 3 salary	6.9 (2)	0.0 (0)	6.1 (4)	0.0 (0)	
3 to 4 salary	0.0 (0)	0.0 (0)	0.0 (0)	50.0 (1)	
More than 4 salaries	0.0 (0)	25.0 (1)	3.0 (2)	0.0 (0)	
Government welfare					
No	37.9 (11)	50.0 (2)	39.4 (26)	100.0 (2)	0.162 (0.506)
Sickness benefit	6.9 (2)	0.0 (0)	1.5 (1)	0.0 (0)	
Family welfare	55.2 (16)	50.0 (2)	59.1 (39)	0.0 (0)	
City of origin					
Caxias	62.1 (18)	75.0 (3)	71.2 (47)	100.0 (2)	0.142 (0.665)
Coelho Neto	24.1 (7)	0.0 (0)	12.1 (8)	0.0 (0)	
Others	13.8 (4)	25.0 (1)	16.7 (11)	0.0 (0)	
Housing area					
Urban	79.3 (23)	75.0 (3)	84.8 (56)	100.0 (2)	0.101 (0.792)
Rural	20.7 (6)	25.0 (1)	15.2 (10)	0.0 (0)	

*Cramer V test with 95% confidence. **Statistical significance.

It was evident, through the analysis of the children's profile, that the majority are male (57.4%) and belong to the age group between two and seven months (53.5%). It was also found that the predominant type of delivery was cesarean (52.5%), with gestational age of > 37 to <42 weeks (60.4%) and, in relation to anthropometric

measurements at birth, they ranged from > 2,500 to <4,000g (59.4%) and between 46 and 50cm (42.5%). It was observed that, regarding the association between clinical variables and the result of the Denver II test, that the children's age group showed a statistically significant association (Table 2).

Table 2. Association between children's clinical variables and the Denver II test result. Caxias (MA), Brazil, 2019.

Variables	Delay	Care/Caution	Adequate	Advanced	Cramer's V
Sex					
Female	34.5 (10)	50.0 (2)	47.0 (31)	0.0 (0)	0.169 (0.412)
Male	65.5 (19)	50.0 (2)	53.0 (35)	100.0 (2)	
Age group					
2 to 7 months	27.6 (8)	25.0 (1)	66.7 (44)	50.0 (1)	0.264 (0.012**)
8 to 13 months	41.4 (12)	50.0 (2)	16.7 (11)	0.0 (0)	
14 to 18 months	10.3 (3)	0.0 (0)	4.5 (3)	50.0 (1)	
19 to 24 months	20.7 (6)	25.0 (1)	12.1 (8)	0.0 (0)	
Type of birth					
Natural	65.5 (19)	50.0 (2)	39.4 (26)	50.0 (1)	0.234 (0.137)
Cesarean	34.5 (10)	50.0 (2)	60.6 (40)	50.0 (1)	
Gestational age					
Less than 35 weeks	20.7 (6)	25.0 (1)	13.6 (9)	50.0 (1)	0.174 (0.407)
From 35 to 37 weeks	10.3 (3)	25.0 (1)	28.8 (19)	0.0 (0)	
Over 37 weekss	69.0 (20)	50.0 (2)	57.6 (38)	50.0 (1)	
Weight at birth					
Less than 2000 g	20.7 (6)	50.0 (2)	15.2 (10)	50.0 (1)	0.138 (0.759)
From 2000 g to 2500 g	13.8 (4)	25.0 (1)	18.2 (12)	0.0 (0)	
From 2500 g to 4000 g	58.6 (17)	25.0 (1)	62.1 (41)	50.0 (1)	
Over 4000 g	6.9 (2)	0.0 (0)	4.5 (3)	0.0 (0)	
Length					
Less than 40 cm	31.0 (9)	50.0 (2)	9.1 (6)	0.0 (0)	0.228 (0.205)
From 41 to 45 cm	6.9 (2)	0.0 (0)	3.0 (2)	0.0 (0)	
From 46 to 50 cm	6.9 (2)	25.0 (1)	24.2 (16)	50.0 (1)	
Over 50 cm	41.4 (12)	25.0 (1)	43.9 (29)	50.0 (1)	
Not informed	13.8 (4)	0.0 (0)	19.7 (13)	0.0 (0)	

*Cramer's V test with 95% confidence. ** Statistical significance.

It is pointed out, in relation to the Apgar score, that the highest percentage remained in the normal range of > 8 in the fifth minute (50.5%), as well as the head circumference, which proved to be appropriate for age (44, 6%). It was also observed that most children did not require neonatal hospitalization (64.4%) and did not present neonatal complications (60.4%). It was found that the majority had their vaccination up to date (70.3%) and had complementary food included before the sixth month of life (36.6%). A significant association ($p < 0.005$) was found between child development and the duration of the intervention and feeding (Table 3).

Table 3. Association between clinical variables and the result of the Denver II test. Caxias (MA), Brazil, 2019.

Variables	Delay	Care/Caution	Adequate	Advanced	Cramer's V
Apgar					
> 8, in 5 ^o min	48.3 (14)	25.0 (1)	53.0 (35)	50.0 (1)	0.093 (0.941)
< 7, in 5 ^o min	13.8 (4)	25.0 (1)	12.1 (8)	0.0 (0)	
Not informed	37.9 (11)	50.0 (2)	34.8 (23)	50.0 (1)	
Cephalic perimeter					
CP higher than expected	0.0 (0)	0.0 (0)	4.5 (3)	0.0 (0)	0.134 (0.794)
CP lower than expected	41.4 (12)	25.0 (1)	48.5 (32)	0.0 (0)	
CP lower than expected	20.7 (6)	25.0 (1)	15.2 (10)	50.0 (1)	
Not informed	37.9 (11)	50.0 (2)	31.8 (21)	50.0 (1)	
Intervention					
No	65.5 (19)	50.0 (2)	65.2 (43)	50.0 (1)	0.275 (0.029**)
Up to 15 days	6.9 (2)	25.0 (1)	31.8 (21)	50.0 (1)	
From 15 to 30 days	3.4 (1)	0.0 (0)	1.5 (1)	0.0 (0)	
From 30 to 60 days	10.3 (3)	25.0 (1)	0.0 (0)	0.0 (0)	
Over 60 days	13.8 (4)	0.0 (0)	1.5 (1)	0.0 (0)	
Complications					
None	55.2 (16)	50.0 (2)	63.6 (42)	50.0 (1)	0.238 (0.845)
O2 Support	13.8 (4)	25.0 (1)	13.6 (9)	50.0 (1)	
Aspiration of liquid / Meconium	6.9 (2)	25.0 (1)	3.0 (2)	0.0 (0)	
Extreme low weight	3.4 (1)	0.0 (0)	4.5 (3)	0.0 (0)	
Jaundice / Phototherapy	3.4 (1)	0.0 (0)	3.0 (2)	0.0 (0)	
Neonatal Infection	3.4 (1)	0.0 (0)	1.5 (1)	0.0 (0)	
Bad formation	0.0 (0)	0.0 (0)	4.5 (3)	0.0 (0)	
Congenital syphilis / Treatment	0.0 (0)	0.0 (0)	4.5 (3)	0.0 (0)	
Others	13.8 (4)	0.0 (0)	1.5 (1)	0.0 (0)	
Vaccines					
Yes	51.7 (15)	75.0 (3)	63.6 (42)	0.0 (0)	0.212 (0.210)
No	48.3 (14)	25.0 (1)	36.4 (24)	100.0 (2)	
Feeding					
Less than six months of breastfeeding	0.0 (0)	25.0 (1)	30.3 (20)	0.0 (0)	0.288 (0.003**)
Less than six months on complementary feeding	10.3 (3)	0.0 (0)	28.8 (19)	0.0 (0)	
Breastfeeding until the sixth month	31.0 (9)	50.0 (2)	13.6 (9)	50.0 (1)	
Complementary breastfeeding before the sixth month	58.6 (17)	25.0 (1)	27.3 (18)	50.0 (1)	

*Cramer's V test with 95% confidence. **Statistical significance.

It was found that the highest percentage of children underwent the heel test (77.2%) and that a large part underwent the ear test (50.5%), however, most did not perform the tongue test (74, 3%), as well as the eye test (66.3%). It is

noted that the results of neonatal screening did not reveal any changes in neonatal screening (90.9%) (Table 4).

Table 4. Association between clinical tests and the result of the Denver II test. Caxias (MA), Brazil, 2019.

Variables	Delay	Care/Caution	Adequate	Advanced	Cramer's V
Heel prick test					
Yes	69.0 (20)	75.0 (3)	80.3 (53)	100.0 (2)	0.144 (0.556)
No	31.0 (9)	25.0 (1)	19.7 (13)	0.0 (0)	
Ear test					
Yes	44.8 (13)	25.0 (1)	54.5 (36)	50.0 (1)	0.135 (0.605)
No	55.2 (16)	75.0 (3)	45.5 (30)	50.0 (1)	
Tongue test					
Yes	24.1 (7)	0.0 (0)	27.3 (18)	50.0 (1)	0.145 (0.547)
No	75.9 (22)	100.0 (4)	72.7 (48)	50.0 (1)	
Eye test					
Yes	44.8 (13)	25.0 (1)	28.8 (19)	50.0 (1)	0.163 (0.441)
No	55.2 (16)	75.0 (3)	71.2 (47)	50.0 (1)	
Altered newborn screening					
Heel prick test	10.7 (3)	0.0 (0)	4.5 (3)	0.0 (0)	0.129 (0.838)
Ear test	3.6 (1)	0.0 (0)	0.0 (0)	0.0 (0)	
Eye test	3.6 (1)	0.0 (0)	1.5 (1)	0.0 (0)	
No alteration	82.1 (23)	100.0 (3)	93.9 (62)	100.0 (2)	

*Cramer's V test with 95% confidence. **Statistical significance.

It is noteworthy that there were no statistically significant differences between the means of quality of life scores in relation to the Denver classification. The Kruskal-Wallis test was applied

to verify whether the means were different, however, the p-value was not significant ($p > 0.05$), so there are no significant differences (Table 5).

Table 5. Analysis of the average quality of life score with the Denver II classification. Caxias (MA), Brazil, 2019.

Denver	Average	Standard Deviation	p-value*
Delay	53.2	16.7	0.383
Care/Caution	57.0	6.1	
Adequate	47.6	26.0	
Advanced	51.0	21.2	

*Kruskal-Wallis test (95% confidence).

DISCUSSION

This research constitutes the first data to assess psychomotor development and quality of life of children classified as high risk. The aim was to evaluate the relationship that some socioeconomic and clinical factors have with child development, thus allowing to know what may interfere with it, offering subsidies to prevent a range of factors that predispose to delay, enabling professionals to intervene as soon as possible, resulting in greater chances of positive responses to treatments and, consequently, providing an improvement in patients' quality of life.

It was observed that the highest percentage of those responsible for children classified as high risk is female, is aged between 18 and 25 years old, has an average income between one and two minimum wages and has completed high school.

It is suggested that the high number of women who took their children to the health service can be explained due to the fact that the female sex is the one who most seeks and takes care of their health. It is pointed out that the data found in this study corroborate that described in the literature. It is noted that in one study, the predominance of female caregivers was also observed and the most recurrent age group was also similar, which is explained because, at this age, women are

considered of childbearing age, however, to this fact no association with child development has been attributed.⁶

It is revealed, for the variables of the responsible person's gender and age group, that no statistical significance was evidenced, corroborating other findings in the literature, such as a study carried out in the reference university hospital of the State of Minas Gerais, in 2015, in which they were evaluated 79 medical records of premature children aged six to 12 months, submitted to the Denver II test, which obtained the same result as this study, not finding an association between child development and these variables.⁷

It is understood that several studies, point to the influence of biological, nutritional, socioeconomic, family factors and the availability of access to services as contributors to neuro-psychomotor development, reinforcing its multifactorial potential.⁸ In a study carried out in Belém (PA),² in which 318 children, of both sexes, from 36 to 48 months of age were screened, that there was a significant association between parents' schooling and child development, corroborating this study, since, as a result of the higher education level of parents, the probability of having a reasonably better occupation is greater and, as a result, there may be a more satisfactory

remuneration, which ensures better living conditions, access to health, nutrition, among other factors.

In this study, a statistical association between the parent's marital status and child development is denied, however, some studies in the literature,⁹ in which 30 children (zero to 30 months) were selected, living in a city in the Jequitinhonha Valley, Minas Gerais, Brazil, served by the Viva Vida Center of Secondary Reference, they pointed out that the single-parent family construction is linked to the worst development of the child by important presence that the maternal and paternal figures have in a child's life and for their maturity as a person.

It is noteworthy, however, as an environmental factor related to the family identified in this study, which showed a significant association with child development, the fact that more than half of the children's families had low family income, between one and two minimum wages, given that corroborates another study,² in which it was concluded that low socioeconomic levels have a direct association with the quality of neuro-psychomotor development and that, in addition to biological factors, environmental and socioeconomic conditions can determine developmental delay.

Regarding family socioeconomic conditions, authors such as Oliveira *et al.*¹⁰ considered low income as a type of constant threat that increases the child's vulnerability, also increasing the likelihood of the child presenting malnutrition, social deprivation and future educational disadvantage, which would compromise their global development.

The relationship between the child's age group and child development was shown to be significant, since children classified as delayed presented, predominantly, ages between eight and 13 months. However, when the link between the sex of the children studied and child development is assessed, an association was not found, thus disagreeing with other findings in the literature, for example, a research that demonstrated that girls achieved performance better in three of the areas surveyed (social personnel, fine motor and language) and only in one of the areas (large motor) there was no statistically significant difference between females and males.²

It can be seen, with regard to the type of delivery, in this study, that there was no significant statistical association, a fact that is in disagreement with the literature, since several authors pointed out that cesarean delivery is a risk factor for child development, as a study,¹¹ that evaluated 77 children aged two to three years, premature and of low weight, in the city of Cuiabá (MT), noting that children who were born by

cesarean delivery had a 44.6% change in the Denver II test, with a predominance in language area.

However, it was evidenced in another study,¹² with children of both sexes, aged four to six years, attending public daycare centers in the city of Goiânia (GO), that normal birth was considered a risk factor for language development (68%), agreeing with other studies, which evaluated 112 children in the State of Paraíba and associated vaginal delivery with a change in neuro-psychomotor development with a Chance Ratio (CR) of 4.4.¹⁷

It is noted that there is still a noticeable divergence in the literature regarding the association of some factors related to development, and this fact can be attributed to the performance of several studies in different locations and, consequently, reveals a singular health care, reinforcing even more the need for further studies to elucidate certain hypotheses.

It is pointed out that, in this study, an association between gestational age and neurodevelopment was not identified, however, some authors stated the opposite, in which a discussion about gestational age was listed.¹⁸ It has been reported that children born between 37 and 38 weeks can be at risk for development. However, this delicate issue is considered, given that child development can be impaired in several ways, that is, it is multifactorial.

It is noted that no associations were found between birth weight and neuro-psychomotor development,¹² which showed that 8% of preterm children had an average birth weight of 3,276 kg, with the lowest weight being 460 g and the highest weight, 4,700 g, with no significant relationship between gestational age and birth weight and the result of neuro-psychomotor development. However, it was found in a study,⁷ that low birth weight can increase the risk of developmental delay. It is also emphasized that other variables associated with prematurity have been shown to be determinants for changes in neuro-psychomotor development.

In this study, it is pointed out that the length at birth was not significant, however, in another study¹² showed that the shorter height at birth is associated with the risk of delay in the motor area, which suggests that the deficit in the growth of children may be associated with difficulties in the fine motor area, bringing the relevance of nutritional issues both during pregnancy and in the first years child's life.

It can be seen in this research that no association was found between Apgar, head circumference at birth and neonatal screening tests. However, child growth surveillance and monitoring aims to promote and protect the child's health. Therefore, with this surveillance, it

is possible to diagnose and treat early any developmental delay, preventing growth deviations from compromising the child's health and future quality of life.¹⁹

When analyzing the intervention time after birth, the association between this variable and child development was evidenced, however, this fact does not agree with neonatal complications, another variable that has a direct relationship with it.

It was pointed out, in a study,⁹ that neonatal complications or the need for admission to the intensive care unit also showed a greater propensity for atypical development, especially in the language domain. Such information is confirmed by the study of the authors,¹⁶ who observed that respiratory deficiencies are among the main factors of neonatal hospitalization.

It is understood, therefore, that the time that these children spent in O₂ supply by mechanical ventilation, invasive or non-invasive, and prolonged hospitalization contribute to the reduction of quality of life and delays in child development during early childhood.¹⁷

It is noteworthy, when analyzing the association between up-to-date vaccination and child development, that no significant results were found. However, it was concluded in a study,²² that the association of the vaccine schedule with the outcome only shows a tendency to significance, since the risk of a child without a complete basic vaccine schedule showing suspicious development was twice as high as in children with up-to-date vaccination. This fact can certainly be attributed to the health protection that vaccination provides, in addition to being an indication that the child has access to and monitoring the health service.

It is known that the individual's food, at any stage of his life, is directly related to his development and health status, and in this study it was evidenced that the food that the child has until the sixth month of life is directly related to its development, a result that corroborates numerous findings in the literature. It is shown that they found results similar to this study, stating that breastfeeding is considered a major psychosocial protection factor related to child growth and development, since, in addition to providing the child with the main source of food and immune protection, it promotes the mother-child bond.¹²

It is noteworthy that, in this study, the association between the child's quality of life and his development was not evidenced, however, this is a result that needs further studies to, in fact, be elucidated, since the quality of life is a very broad and subjective factor that includes several factors that may or may not interfere in this development.

It is suggested that the different concepts that quality of life may have provide the individual with different perspectives on its meaning, both for the individual and for the community. It is evaluated, when talking about health and its influence on the quality of life of a community or even of an individual, in this way, that public health interventions allow to promote improvements in the conditions that influence the quality of life of the people involved. It appears that, in order to determine an individual's standard of living, it is necessary to take into account several factors, including family, work and school environments, psychological and socioeconomic factors, among others.²³

It is verified, in order to understand child development that, it is essential that cultural, economic and social factors, family conditions, quality of care received by education and health services, among others, be considered.²⁴

It is pointed out that this study had as a limitation the scarcity of studies referring to the risk stratification of children from zero to 24 months and the child development and quality of life of children stratified as high risk, due, for example, to the short time of use of the instrument for risk stratification of children.

CONCLUSION

It is concluded that the Denver II test pointed out that high-risk children had an adequate development, however, a significant number of children were delayed or suspected, and the highest levels of delay were observed with regard to language development and gross motor skills.

It was evident, through the results of this research, that high-risk children have a set of factors that can cause a delay in development and quality of life. Listed among them are socioeconomic and psychosocial factors, such as education and family income, added to birth factors, such as Apgar, head circumference, type of delivery and gestational age.

It is pointed out, in terms of children's quality of life, that the levels were low to moderate. However, it is considered that assessing children's quality of life is still a challenge, as parents / guardians must answer the questionnaire based on their own perceptions of the child's daily life.

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