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ORIGINAL ARTICLE

RISK FOR CHILD DEVELOPMENT ACCORDING TO THE INTEGRATED ATTENTION STRATEGY TO THE PREVALENT ILLNESSES IN CHILDHOOD

RISCO PARA O DESENVOLVIMENTO INFANTIL SEGUNDO A ESTRATÉGIA DA ATENÇÃO INTEGRADA ÀS DOENÇAS PREVALENTES NA INFÂNCIA

RIESGO PARA EL DESARROLLO DEL NIÑO SEGÚN LA ESTRATEGIA DE LA ATENCIÓN INTEGRADA EN LA INFANCIA

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ABSTRACT

Objective: to examine the socio-economic and environmental risk factors for the development of children aged 0-2 years old. **Method:** a descriptive study done with a riverine community of Belém/Pará/Brazil, with mothers and 50 children aged 0 to 2 years old, with observation of the environment and the use of form and evaluation form of child development according to criteria of Integrated Diseases of Childhood. The Research Ethics Committee of FHCGV / PA approved the research protocol number 007/2009. **Results:** it was found that 34(68%) children had risks related to maternal education, 49(98%) were exposed to risks related to environmental factors, 40(80%) were vulnerable to risks related to the precarious condition of health, 15 (30%) were susceptible to risks related to inadequate practices of care and 7(14%) had clinical signs of developmental delay. **Conclusion:** children are exposed to several risk factors, exacerbating the vulnerability. **Descriptors:** Child Health, Pediatric Nursing; Integrated Management of Childhood Illness; Child Development.

RESUMO

Objetivo: verificar os fatores de risco socioeconômicos e ambientais para o desenvolvimento de crianças de 0 a 2 anos. **Método:** estudo descritivo, realizado em comunidade ribeirinha de Belém/PA/Brasil, com as mães e 50 crianças de 0 a 2 anos, com observação do ambiente e o emprego de formulário e ficha de avaliação do desenvolvimento infantil de acordo com critérios da Atenção Integrada às Doenças Prevalentes na Infância. O Comitê de Ética em Pesquisa da FHCGV/PA aprovou a pesquisa, protocolo nº 007/2009. **Resultados:** verificou-se que 34(68%) crianças apresentaram riscos relacionados à educação materna, 49(98%) estavam expostas a riscos relacionados a fatores ambientais, 40(80%) encontravam-se vulneráveis a riscos relacionados à condição precária de saúde, 15(30%) estavam suscetíveis a riscos relacionados às práticas inadequadas de cuidado e 7(14%) apresentavam manifestações clínicas de atraso no desenvolvimento. **Conclusão:** as crianças estão expostas a diversos fatores de risco, exacerbando a vulnerabilidade. **Descritores:** Saúde da Criança; Enfermagem Pediátrica; Atenção Integrada às Doenças Prevalentes na Infância; Desenvolvimento Infantil.

RESUMEN

Objetivo: analizar los factores de riesgo para el desarrollo socio-económico y ambiental de los niños de 0-2 años. **Método:** se realizó un estudio descriptivo en la comunidad ribereña de Belém/PA /Brasil, con las madres y 50 niños y niñas de 0 a 2 años, con la observación del medio ambiente y el uso de la forma y el formulario de evaluación del desarrollo del niño de acuerdo a criterios de Integrated Enfermedades de la Infancia. El Comité Ético de Investigación de FHCGV/PA aprobó el protocolo de investigación número 007/2009. **Resultados:** se encontró que 34(68%) niños presentaron riesgos relacionados con la educación de la madre, 49(98%) fueron expuestos a riesgos relacionados con factores ambientales, 40(80%) eran vulnerables a los riesgos relacionados con la precaria condición de salud, 15(30%) fueron susceptibles a los riesgos relacionados con las prácticas inadecuadas de cuidado y 7(14%) presentaron signos clínicos de retraso en el desarrollo. **Conclusión:** los niños están expuestos a varios factores de riesgo, lo que agrava la vulnerabilidad. **Descriptores:** Salud Infantil; Enfermería Pediátrica; Atención Integrada a las Enfermedades de la Infancia; Desarrollo Infantil.

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INTRODUCTION

This study has the theme "socioeconomic and environmental risk factors for the development in riverside children in an area of the town of Betém, Pará - Brazil."

The monitoring of child development, according to the strategy of Integrated Management of Childhood Illness (IMCI) is a point of reference for all child care activities under the biological, emotional, psychological and social, as it is able to establish procedures curative targeting pathological processes present and the establishment of preventive measures appropriate to each age, encompassing questions about immunization, nutrition, general care and stimulation in a continuous process of education for health.¹

According to the IMCI strategy risk for child development involves many factors that can negatively influence the child's development. They result from the interaction between the biological characteristics, such as disease, and experiences offered by the environment. Adverse factors in these two areas can alter the appropriate pace of development.¹⁻²

In Brazil, according to the Department of the Unified Health System (DATASUS) in 2010, 11% of infant deaths in the first year of life were caused by infectious and parasitic diseases. Other information concerning the nutritional situation, approximately 6% of children under five are malnourished frame, which is worrying. The vulnerability that stage of life, associated with nutritional status and disease are closely related to the physical-motor, thereby defining the health status of children.³⁻⁴

Thus, the IMCI strategy recommends that the effectiveness for adequate biopsychosocial development of children, it is important to interact with the state, community and family, featuring the so-called ecological model for human development, where each sphere determinants of this model has the integral development of childhood. The same has a systematic view on the effectiveness of different environmental situations, influencing each according to its determinants.¹

The State of Pará / Brazil is characterized by poor distribution of existing resources and low human development index. The poverty of the population directly influences the quality of life, which involves health, education, housing and sanitation. The underdevelopment of the region is, according to IMCI-based Ecological Model of Human Development, a risk factor in child development.

With support in the magnitude of the problem and face the few studies on the health status of riverine children in the country, this research aims to verify the risk factors for socio-economic and environmental development of children aged 0-2 years old.^{1,5}

METHOD

A descriptive study whose sample consisted of mothers and 50 children aged 0-2 years old, belonging to families living in the riverside area of the town of Belém / Pará / Brazil.

An inclusion criteria were adopted: homes where dwell children of both sexes aged 0 to 2 years old without medical diagnosis of genetic diseases or metabolic disorders that compromise the developing neuro-psycho-motor, living in households Neighborhood resident of Pratinha in Belém do Pará, the exclusion criteria were: children with a medical diagnosis of genetic diseases that affect the developing neuro-psycho-motor and those with neurological disorders.

The strategy of home visits was used to collect data on 50 households, randomly chosen and consistent with the inclusion criteria. We used three (03) data collection instruments: the first was the observation of family environment with judicious annotation in a field diary of structural reality of the family. The second instrument was a form with questions directed to mothers to identify socio-environmental, investigating maternal age and infant, degree of maternal education, type of residence, number of rooms and household members; sanitation; kind water, the garbage disposal, type of toilet, family income, participation in any government social program, completion of pre-natal, type of delivery, presence of exclusive breastfeeding; update immunization of their children.

The third instrument was the accompanying form of development proposed by the Handbook for Monitoring Child Development in the Context of IMCI. This form suggests that the assessment of child development must follow the following steps: gather information with parents about risk factors for developmental delay; identify the mother's perception about your child's development; verify the presence of changes through physical examination. Furthermore, we evaluated the attitude, behavior and reflexes, according to the child's age group.

Children were assessed in 32 milestones of child development into eight age groups comprising periods from 0 to 24 months (0-2, 4, 6, 9, 12, 15, 18 and 24 months). During the evaluation were considered four areas of

observation: gross motor, fine motor, and language and personal-social interaction. Failure to fulfill one landmark was considered significant deviation, according to the child's age group.

Data were recorded in Microsoft Excel ® spreadsheet. The analysis and discussion of the data were based on the concepts of IMCI, which is based on the ecological model of human development, which part of ecodesign that different environments (micro-and macro social) interact. In this view, the environments are represented by the State, the Community and Family, each with its own norms and values. The state through policy formulation. The Community through their participation and organization models. Finally, the Family in its transcendent role of protection, care and meet the immediate needs of children.

In respect to the norms of the National Research Ethics - CONEP present in the resolution of the National Health Council 196/96 and Chapter IV of Resolution 251/97, the research project was submitted to the Ethics Committee and the Research Foundation of Hospital Para-clinical Gaspar Viana (FHCGV/PA), opinion adopted try, unqualified, under protocol n. 007/2009.

Participants signed a consent form, are guaranteed anonymity and withdrawal at any time without prejudice to the participant.

RESULTS

The sociodemographic characteristics of the study participants are shown in table 1, reveal that most children of 19-24 months of age (34%) and most of the mothers was in the age group of 21-30 years old (50%), followed by age group of 11-20 years old (40%).

Regarding education, there was a greater frequency of mothers with low levels of school education (62%), characterized by non-completion of primary education, 6% illiterate. Observe that all families face financial difficulties, the majority (70%) survive on a monthly income less than minimum wage, 28% of households have income of a minimum wage and only 2% reported a monthly income greater than a paycheck minimum. It is noteworthy that families with monthly income less than minimum wage receive complementation through the Family Grant Program of the Federal Government (table 1).

Table 1. Distribution of participants according to socio-demographic characteristics. Pratinha/Belém/Pará, 2009

Characteristics	n	%
Average age of the children (in months)		
0 to 6	16	32
7 to 12	10	20
13 to 18	7	14
19 to 24	17	34
Total	50	100
Average age of the mothers (age)		
11 to 20	20	40
21 to 30	25	50
31 to 40	4	8
41 to 50	1	2
Total	50	100
Mothers scholarity		
Illiterate	3	6
Basic school incomplete	31	62
Basic school complete	8	16
Middle school incomplete	5	10
Middle school complete	3	6
Total	50	100
Family income		
< 1 minimal salary*	35	70
1 (one) minimal salary	14	28
> 1 minimal salary	1	2
Total	50	100

*Income supplemented by the Federal Government Family Allowance Program. Source: Form Pratinha-Belém-Pará, 2009.

Regarding the environmental characteristics, most families live in wooden house (90%) sharing a room with two to four people (52%) and 22% of the homes range from 2 to 4 rooms occupied for up to 7 people. It is

noticeable that most of the homes (74%) do not have basic sanitation, and lack of internal bathroom. Regarding the water used for drinking, 38% of households do not perform any type of treatment thereof (Table 2).

Tabela 2. Distribution of participants according to environmental characteristics. Pratinha/Belém/PA, 2009

Characteristics	n %	
	n	%
Type of the house		
Wooden	45	90
Brickwork	5	10
Total	50	100
Number os rooms per person		
1 room / 2 to 4 people	26	52
2 to 4 rooms / 5 to 7 people	22	44
5 to 6 / 8 to 9 people	1	2
6 to 7 / 14 to 16 people	1	2
Total	50	100
Basic Sanitation		
Yes	13	26
No	37	74
Total	50	100
Water for use		
Boils	8	16
Leaches	13	26
Hypochlorite	5	10
Filters	5	10
Not treating	19	38
Total	50	100

Source: Form Pratinha-Belém-PA, 2009

Table 3 presents the data related to events pre-natal, natal and post-natal. It was found that there was a prevalence of mothers (86%) who underwent prenatal care and who had vaginal delivery (70%). The occurrence of problems during pregnancy, such as preeclampsia, dyspnea, back pain, leg edema, showed a 24% frequency.

As for exclusive breastfeeding (EBF), we found that only 38% of children remained in EBF until 6 months of age. Cases of diarrhea and vomiting in the first six months of life were common in 16% and 14% of children, respectively. Regarding vaccination, 64% of the children had actualized vaccination schedule (Table 3).

Table 3. Distribution according to mother and child/profile Pratinha/Belém/PA, 2009

Profile	Age (in months)				Total	
	0 to 6	7 to 12	13 to 18	19 to 24	n	%
The mother did prenatal	14	10	7	12	43	86
The mother showed gestational problems	5	1	4	2	12	24
Of vaginal born	10	9	3	13	35	70
Kept at AME*	8	5	3	3	19	38
Diarrhea at the first six months of living	1	2	2	3	8	16
Vomits at the first six months of living	2	1	1	3	7	14
Shows an actualized vaccination scheme	13	7	2	10	32	64

* Exclusive breastfeeding until 6 months of age. Source: Form Pratinha-Belém-PA, 2009.

Table 4 shows the risk factors for child development, analyzed according to the criteria of IMCI, which is based on the biological model of human development and its determinants.

Among the observed risk was prevalent environmental risk (98%), reduced risks to socioeconomic resources (92%), risks related

to the poor health of children (80%) and risks associated with low maternal educational level (68 %). During the visit it was observed that 20% of mothers showed little interest in issues involving the development of their children, 30% had inadequate practices of child care and 34% reported little or no interaction with their children.

Table 4. Distribution according to the risk factors observed during the home visit - Pratinha/Belém/PA, 2009.

Identified risks	Age (in months)				Total	
	0 to 6	7 to 12	13 to 18	19 to 24	n	%
Low scholarity level of the mother	14	6	5	9	34	68
The environment	9	11	15	14	49	98
Poor health conditions	4	7	10	19	40	80
Inadequate care practices	2	3	4	6	15	30
Lack of socio-economic resources	14	10	7	15	46	92
Lack of appropriate stimuli	3	3	3	8	17	34
Little maternal interest in the child development	3	3	0	4	10	20

Source: Form Pratinha-Belém-PA, 2009

Table 5 shows the profile assessment of child development according to the statement Monitoring Child Development by researchers and applied according to maternal opinion. The analysis of data collected through the sheet Monitoring Child Development revealed

that 14% of children did not show the full potential of development. However, the assessment of children held by their mothers showed that 10% of them thought there is some development deficit in his child.

Table 5. Distribution according to evaluation of the child's development by researcher and mother, Pratinha/Belém/PA, 2009.

Evaluation	Age (in months)				Total	
	0 to 6	7 to 12	13 to 18	19 to 24	n	%
Maternal assessment: child without full development	1	0	2	2	5	10
Maternal assessment: child with full development	15	10	5	15	45	90
Evaluation of researcher: child without full development	1	2	1	3	7	14
Evaluation of researcher: child with full development	15	8	6	14	43	86

Source: monitoring of child development, Pratinha-Belém-PA, 2009.

DISCUSSION

Studies show that maternal education leads to a situation of vulnerability in early childhood, since the time of study is closely related to cognitive skills that the mother uses to stimulate their children. It is understood that the educational level of mothers affects the chances of schooling of their children and their own cultural ambience of family. This study rests on this assumption, where the level of maternal education acts in ways that affect the care practices and transform the physical and social environment of the child, influencing its development.⁷

As low family income, we see that in Brazil, in 2012, are considered below the poverty line those families who have an income less than R\$ 70 (Reals) per capita per month. A significant number of families in the study environment, had incomes below the minimum wage (70%) and were supported by the State of Bolsa Família (a family financial support). This is a program of direct income transfer that benefits families in extreme poverty across the country and has its focus on the sixteen million Brazilians with per capita income less than seventy actual monthly.⁸⁻⁹

Reflecting on this fact, the extreme family poverty can generate early integration of children into the labor market by introducing them a sense of responsibility off your time.

Regarding maternal age, a significant amount of mothers (40%) was between 11 and 20 years old, what makes us think of early onset of sexual activity. In designing the IMCI-based ecological model of human development, having children in adolescence means a social risk for the development of the child for teenage mothers compared to adult mothers interact with their children quantitatively less, are less sensitive to the needs of the baby, offer few opportunities for stimulation, less verbal during interactions with the child, tend to look and facial expressions vary less frequently, less contingently respond to the behavior of their children, maintaining emotional ties fainter, are often more inaccurate in their estimates about ages when a baby reaches the typical stages of common development, face greater stress, are less sensitive, and less communicative and patients often do not interpret well the needs of their children.^{1,7,10}

It is noticed that the majority of children live in households with only one room (52%), sharing the space with up to four people, which favors a multifaceted everyday life, marked by conflicts and embarrassing

circumstances. Cases like these, whose families are numerous and who live in small living spaces, determine the dilution of income and consequent social instability. It is also noteworthy that children are exposed to unsanitary, since the majority of households do not have windows, preventing adequate ventilation and sunlight penetration, risk factors for aggravation of respiratory diseases.¹⁻²

With respect to sanitation, defined by the simultaneous presence of the water supply system for water and sewage, it was identified that the majority of households (74%) survives without this urban service. Moreover, the situation becomes aggravated due to dump on the banks of the Rio Guamá domestic sewage. The contamination of water adds to proliferation of rodents and insects that act as vectors of infectious and parasitic diseases, creating situations harmful to health and environmental risk imminent development of children living in the area, according to the IMCI-based ecological model of human development.^{1,11}

Among the urban sanitation services, however, the sewage is what presents the greatest problems with regard to the scope and quality of care in riparian areas. In these places, it is common to launch domestic sewage directly into ditches, rivers, lakes or the sea.^{5,11}

It was also found that significant amount of mothers do not do any treatment of the water consumed by the family (38%), which makes the child vulnerable to waterborne diseases and infestation of parasitic diseases. During visits a mother reported that one of their children (8 years) had a "crisis of worm." In the story the mother reported that the child worms expelled through the mouth, nose and anus. Being a common problem in the community, is the cultural offer for children mothers tea peel copaiba (regional fruit) to solve the problem.

Intestinal parasites pose a serious public health problem in underdeveloped countries and are intimately related health conditions. His presence is constantly associated with lack of sanitation and poor hygiene. The nutritional deficit by intestinal parasites in children can result in negative effects on normal development, especially in relation to learning.¹²

There are indexes that indicate the decrease of parasitic diseases in Brazil in recent years. Then comes a question: How many cases like the one above are not notified, masking rates of infectious and parasitic diseases in children?

Unfortunately none of the families participating in this study received visits from Community Health Agents (ACS) and only sought health care when disease symptoms occurred, which hinders the guidelines for health promotion.

Front these adversities is relevant routine health education for efficient and effective transfer to mothers with accessible language, accurate information with regard to hygiene, water treatment, maintenance of a suitable environment for the child, guidelines for prevention injuries, minimizing the occurrence of highly preventable health problems.¹⁴

In the study it was found that although the majority of mothers received prenatal care (86%), 14% of them were not followed during pregnancy by a health professional, featuring a poor coverage, which may have influenced the amount of mothers who developed problems during pregnancy. This indicates the need to think of ways to expand access of pregnant women to health services as well as improve the quality of consultations, especially strengthening the host in order to ensure adherence to the program of prenatal care.¹⁵

It was observed in this study that mothers who received prenatal care had children healthier and less sick during the first six months of life. Would it result from the information acquired in prenatal consultations?

An extremely important result shown in the study concerns the small number of children who remained in exclusive breastfeeding (EBF) until six months of age (38%). Breastfeeding is primarily responsible for the growth and development of children and dissemination of information regarding this practice should always be encouraged, because the lack of knowledge regarding the same is a major cause of early weaning.^{2,16}

The feeding of children who remained in AME, according to maternal report, is a mixture of rice flour and milk in a ratio of 3 to 1 tablespoon. This information underscores the need for constant evaluations of the nutritional status of these children, for conditions where the food supply is less than the body's daily needs child, can generate severe malnutrition with long periods of hospitalization, which might be a risk factor child development, because the child is deprived of family and social life.¹

The fact that 62% of children do not have remained in AME may have reflected the high frequency of diarrhea (16%) and vomiting (14%) at the first six months of life.

Sometimes, the need to save gas ends up subjecting the child to the risk of gastrointestinal tract infections, because no temperature or boiling time required for extinction of pathological microorganisms present in waste milk in bottles and teats.¹⁷

In the present study, despite the undoubted importance of vaccines in preventing diseases have many children (36%) had delayed vaccine schedule by many different factors, including difficulties due to households having access to health services. It is common understanding that is simply providing health services to concurrently access the same happens as a result. However, this does not always occur, since access to these services in Brazil are strongly linked to geographic and economic problems, the latter does not mean only natural topographical difficulties as the distance between home and the place where health services are provided, add here the supply of transport, in their various options and times, as well as costs and travel time.¹⁸⁻²⁰

Among the risks to child development, assessed by the IMCI strategy within view of the ecological model of human development and its determinants, has highlighted the environmental risks related to poor living conditions and sanitation in which children are inserted, the risks related to low socioeconomic resources, characterized by low income, the risks associated with poor health of children, including runny nose and nasal congestion, wheezing, lung, skin, and eye *pruritus pediculosis*, and risks related to low maternal education, a factor closely related to risks that relate to the lack of stimuli and inappropriate practices of care, the latter involving poor hygiene and improper diet. By questioning mothers about the reduced offer encouragement to the children, mostly disregards this practice because they believe that children are too small for that kind of attention.⁴

Studies show that care provided by mothers and care offered, is the first condition for the child to develop properly in the first years of life. Reflecting on this, one sees that the reduced supply of affection from mother to child can leave permanent marks on the child, thus becoming one of the most important risks to the full development of children.^{4,21}

Thus, from the data analyzed, we understand that children in this riverside community are exposed to multiple risks to your development. Events of social and environmental risk multiples are considered more adverse than a single event, i.e., there is a multiplier effect, in which a factor

exacerbates another, forming a network of negative events. Both the intensity and chronicity of risk factors are dimensions that should be considered in evaluating its negative impact on a child's development.²¹⁻²²

Among children evaluated according to specs Monitoring Child Development, 7 (14%) had no full development potential, which may be due to reduced incentives promoting the mother and poor environmental conditions and health. Several studies show that socioeconomic and environmental factors exert significant influence on child development.^{1,21,23}

The mother is usually the person who most lives with the child, therefore, is who else is watching, being able to recognize if your child develops as other children. To solicit maternal opinion about the development of your child, some mothers thought there were some developmental disabilities in children. The maternal opinion is essential information because if it shows that something is not right, care for your child should be redoubled.¹⁻²

It is important to encourage assessment of the mother about the child's development to undertake an active role in the process of your child's health, making the mother a partnership with health professionals, especially nurses, in the assessment of child development.^{1-2,24}

There are children who showed no clinical signs of developmental delay due to receive adequate stimuli and are apparently well nourished and healthy, but they can not reach their full potential for development due to multiple environmental risks, social and economic developments that are exposed. This highlights the importance of promoting incentives that generate a great development in early childhood with his family, contributing to the generation of individuals with greater critical sense, capable of facing difficulties and becoming teenagers, young adults and healthy and socially productive.^{1,21}

CONCLUSION

Direct observation of the child's home environment and the lifting of socioeconomic and health were key tools for understanding the profile of child development within a riparian community.

The findings showed that children are exposed to several risk factors, exacerbating what the literature shows how vulnerable condition. This variability of risk factors present in the life of the same person are not added but multiplied thus is relevant to implementing a strong program and active

surveillance of child development conducted by nurses, which monitors, evaluates and stimulates the development of the child.

Proposals for health promotion and disease prevention may be stipulated from the prior knowledge of the situational context of the group or community in which the child is inserted in order to propose strategies that enable improvements in living conditions. So please note, under the care of the child, the importance of home visitation by nurses as an essential strategy and priority to assess the risks of child development, thus facilitating the evaluation of the child in their social reality, different than query shown in clinical nursing within an office.^{6,22,25}

It is worth emphasizing the importance of encouraging mothers to be supervisors and evaluators of development, causing recognize and learn to give adequate stimulus and act to prevent impending accidents.

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