

# Vulnerability of children in adverse situations to their development: proposed analytical matrix\*

VULNERABILIDADE DA CRIANÇA DIANTE DE SITUAÇÕES ADVERSAS AO SEU DESENVOLVIMENTO: PROPOSTA DE MATRIZ ANALÍTICA

VULNERABILIDAD DEL NIÑO DELANTE DE SITUACIONES ADVERSAS A SU DESARROLLO: PROPUESTA DE MATRIZ ANALÍTICA

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## ABSTRACT

This theoretical study presents a conceptual matrix built to analyze the vulnerability of children in adverse situations to their development. It proposes that the vulnerability of children is analyzed by means of the following dimensions: *individual*, which is related to ongoing nurturing relationships, physical protection and security; *social*, which concerns the social insertion of family and access to rights of social protection and promotion; and *programmatic*, which involves the political-programmatic scenario and the guidelines and political-programmatic implementation. The practical application of this matrix allows apprehending the health-disease process beyond the individual dimension, enabling the articulation of public policies and actions of professionals to achieve effectiveness in meeting the needs of children. The use of this conceptual matrix can provide to health teams a specific understanding of the adverse situations to child development as well as subsidizing intervention plans based on the analytical dimensions of vulnerability.

## DESCRIPTORS

Vulnerability analysis  
Child development  
Child health

## RESUMO

Estudo teórico que teve como objetivo elaborar uma matriz conceitual para analisar a vulnerabilidade da criança diante de situações adversas para seu desenvolvimento. Propõe-se que vulnerabilidade da criança seja analisada por meio dos aspectos das dimensões *individual*, relativa a relações sustentadoras contínuas e proteção física e segurança; *social*, concernente à inserção social da família e ao acesso a direitos à proteção e promoção social, e *programática*, cenário político-programático, de diretrizes e implementação político-programáticas. A aplicação prática desta matriz permite a captação do processo saúde-doença para além da dimensão individual, possibilitando a articulação das políticas públicas e das ações dos profissionais, a fim de obter eficácia no atendimento às necessidades das crianças. O uso desse instrumento conceitual pode propiciar às equipes de saúde a apreensão, de forma específica, das situações adversas ao desenvolvimento infantil, bem como subsidiar a construção de planos de intervenção a partir das dimensões analíticas da vulnerabilidade.

## DESCRIPTORIOS

Análise de vulnerabilidade  
Desenvolvimento infantil  
Saúde da criança

## RESUMEN

Este estudio teórico tuvo como objetivo elaborar una matriz conceptual para analizar la vulnerabilidad del niño delante de situaciones adversas para su desarrollo. Se propone que la vulnerabilidad del niño sea analizada a través de los aspectos de las dimensiones: *Individual*- relaciones sostenedoras continuas, y protección física y seguridad; *Social*- inserción social de la familia y acceso a los derechos, a la protección y la promoción social; y *Programático*- escenario político-programático y directrices y realización político-programáticas. La aplicación práctica de esta matriz permite la captación del proceso salud-enfermedad más allá de la dimensión individual, posibilitando la articulación de las políticas públicas y de las acciones de los profesionales, con el objetivo de obtener eficacia en la atención de las necesidades de los niños. El uso de este instrumento conceptual puede propiciar en los equipos de salud la aprensión, de modo específico, de las situaciones adversas al desarrollo infantil, así como subsidiar para la construcción de planes de intervención a partir de las dimensiones analíticas de la vulnerabilidad.

## DESCRIPTORIOS

Análisis de vulnerabilidad  
Desarrollo infantil  
Salud del niño

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## INTRODUCTION

The profile of infant morbidity changed from the nineteenth century to the twenty-first century, going from an epidemiological reality focused on infectious, parasitic and malnutrition diseases, to a profile of illnesses related to new morbidities such as exposure to violence, drug use by parents, increase in obesity and sedentary lifestyle, as well as the constant presence of health injustices related to economic, racial and ethnic inequalities<sup>(1)</sup>.

Within this context, the goals for the development of children should not be focused only on physical survival, but also in social, emotional, cognitive and language aspects<sup>(2)</sup>. These demands challenge society to ensure children get all their fundamental rights, such as protection, health, nutrition, education, sport, leisure, culture, among others. However, these goals can only be achieved if there is political and social commitment that enables social, economic and material conditions for families<sup>(3)</sup>.

Child development can be defined as a vital process resulting from the interaction between the phenomena of growth, maturation and learning, in which qualitative changes occur in the functions of individuals. This can be noticed in their abilities and behaviors in physical, intellectual, emotional and social dimensions<sup>(4)</sup>. This process is influenced by the environment where children and their families live, and it is defined as a group of conditions such as access to health, nutrition, stimulation, education, drinking water, sanitation and family access to educational and material resources<sup>(2-3)</sup>.

In this perspective, the attention to children's health should be organized to strengthen aspects that foster and promote improvements in child care beginning from the household, including their social network of support, and an intersectoral approach which includes public and private social institutions that guarantee their rights<sup>(4-5)</sup>. Furthermore, it is necessary to be based on effective conducts that seek to overcome the difficulties for the growth and healthy development of children, which may expose them to situations of vulnerability<sup>(3,6)</sup>.

Vulnerability can be understood as a set of conditions that make individuals and communities more susceptible to illnesses or disabilities, not only because of individual aspects, also because of social and programmatic factors<sup>(7)</sup>. Understanding this concept provides that health professionals recognize the health needs and act on strengthening healthy living environments and in the health potential of the population so there is a better quality of life<sup>(8)</sup>. Recognizing all this allows the understanding of the health-disease process and stimulates changes in health practices, such as social, historical and intersectoral practices<sup>(6)</sup>.

By using the vulnerability in their daily professional routines, the healthcare team can critically examine their practices aiming to integrate care and the complexity of the concept of health<sup>(8)</sup>. Moreover, the application of vulnerability in child care allows reorienting the assistance model to overcome the fragmented and biologicist model of child development, contributing to the implementation of the integrality concept<sup>(4,8)</sup>.

As vulnerability in child development is complex and influenced by adverse multidimensional situations, the interventions for its reduction should combine multi and interdisciplinary approaches and different theoretical-methodological contributions<sup>(4,8,10)</sup>.

To grasp this reality it is necessary to dispose of analytical instruments capable of recognizing the vulnerability<sup>(8)</sup> in child development. These instruments are considered *care technologies*<sup>(9)</sup>, because they systematize knowledge that supports the staff in identifying adverse situations to child development, and allow to understand the magnitude of health phenomena, enabling intervention propositions that are more specific and targeted to the condition of each child<sup>(6,8)</sup>. Thus, the health technology proposed here may contribute

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to the operationalization of the concept of vulnerability, allowing to overcome the probabilistic model of health diagnosis by a gaze directed to the needs of children and their families<sup>(7-8, 10)</sup>.

Therefore, this paper aims to propose a conceptual matrix to analyze the vulnerability of children in adverse situations to their development.

## DEVELOPMENT OF THE MATRIX

The model of analysis proposed in this article appeared while carrying out an exploratory qualitative study that sought to understand the vulnerability in child development according to the nurse of the Family Health Strategy Program.

In order to consider the multidimensionality of aspects that can harm the development of children<sup>(4,11)</sup> and the implications for its promotion, the above mentioned study intended to use the vulnerability matrix developed by Ayres for the analysis of vulnerability to AIDS<sup>(7)</sup>. However it was not possible to use this theoretical construct due to the specificities of children such as, lack of autonomy with regard to decision-making among other aspects that differentiate it from adults exposed to HIV grievance, for which the aforementioned matrix was designed<sup>(4,11)</sup>. This gap demanded formatting a matrix that allowed the analysis of vulnerability according to the specificities of child development.

During the elaboration of the concept of vulnerability it was taken into consideration that the approach to this concept should seek to grasp the specific reality of subjects

and communities, analyzing the following conditions: the subject, in which period of the cycle of life the vulnerability occurs and the type of grievance<sup>(7,9)</sup>.

The children aged between zero and three years old were outlined as the subjects of this theoretical construct; this age range is a sensitive period especially due to their extreme dependency on care for survival<sup>(4)</sup>. At this stage children may experience adverse situations which – according to neuroscience, molecular biology, epigenetics and behavioral and social sciences – will condition their educational success, their ability to better cope with emotions, their health conditions throughout life, their ability of economic productivity and their roles as citizens<sup>(12)</sup>.

The children must be understood as social subjects that have specific characteristics and needs, once the development process is not spontaneous, but resultant of material conditions of life and of interactions between children and their physical, emotional and social environments. Therefore, their development should be understood as a historical and social construct<sup>(3-4)</sup>.

The care can strengthen child development and resolve situations of inequity however this task cannot be exclusive of the family, but shared by implementations of public policies that promote child protection and make resources available for caregivers<sup>(3, 5)</sup>. Furthermore, it should target the basic needs of children, enabling the reach of their intellectual, social, emotional and physical potentials<sup>(4,11)</sup>.

Noteworthy are the following essential needs for child development: ongoing nurturing relationships, physical protection, safety and regulation; experiences that respect the individual characteristics of the child; experiences appropriate to their development, limit setting, organization and expectations as well as stable and supportive communities with cultural continuity<sup>(11)</sup>.

These needs are related to survival and development of individuals, regardless of their ethnicity, social class, physical and mental conditions. The lack of provision can produce adverse situations that irreversibly or not, can affect the development of the child<sup>(11)</sup>. There is evidence that significant adversity can lead to excessive activation of stress response systems, including stress hormones such as cortisol, which can harm the developing brain<sup>(12)</sup>.

Based on these needs, the adverse situations to child development were theoretically grouped according to the dimensions of vulnerability: *individual* – ongoing nurturing relationships, physical protection and security which are those composed of biological, behavioral and affective aspects<sup>(7,11)</sup>; *social* – social insertion of family and access to the rights of protection and social promotion, which are those composed of contextual, economic and social aspects<sup>(3,7)</sup>, and *programmatic* – political-programmatic scenario and guidelines and political-programmatic implementations, which are

those that express the manner and direction in which policies, programs, services and actions interfere in child development<sup>(2,7)</sup>.

The aspects mentioned are summarized in the analytical matrix shown in figure 1.

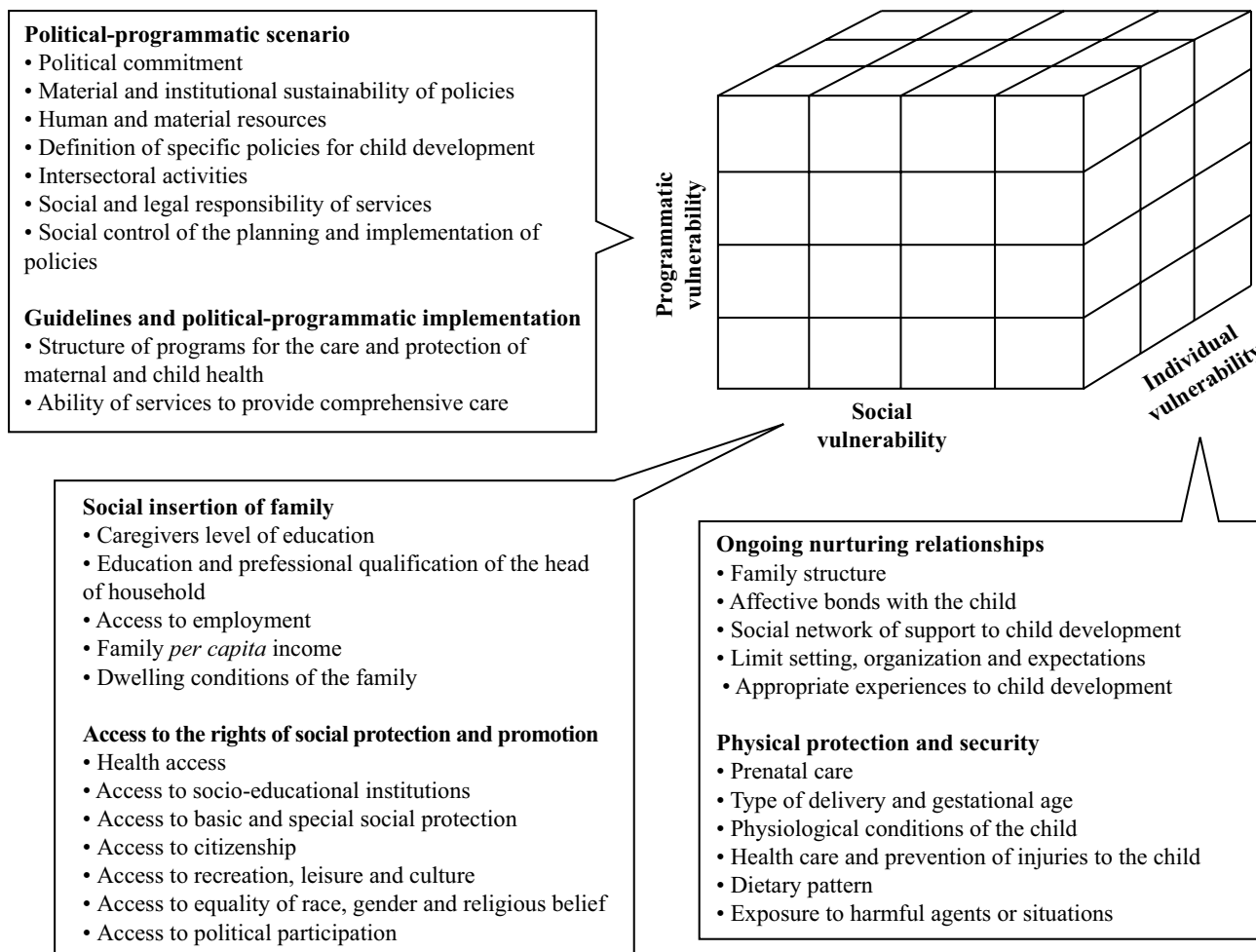
In order to facilitate the interpretation of the matrix described above, adverse situations will be presented together with their relation to the possible impairments on child development according to the dimensions of vulnerability:

### **Individual vulnerability**

Considering the individual dimension, it is understood that children may have impairments in their development if the *ongoing nurturing relationships* were scarce or absent. Relationships are supportive when they allow children to develop a sense of self-confidence and confidence in their environment, learn to live socially, develop empathy for others in their individuality and aim to reach things that are important for them. The absence of such relationships may inhibit the development of the central nervous system, altering children's learning process and their ability to relate, and reverberate in the children's knowledge about the importance of life in society and the culture to which they belong<sup>(11)</sup>. These relationships are influenced by the family structure of the child<sup>(11)</sup>, the affective bonds with the child<sup>(11)</sup> and the social network of support to child development<sup>(13)</sup>.

It is understood that through nurturing relationships with their caregivers and families, children need limit setting, organization and expectations that guide them to organize their activities, show interest in daily activities and participate in household activities according to their age and ability<sup>(11)</sup>. Children also need to have experiences appropriate to their development, which are related to stimulation received since the womb and during their first years of life, characterized by encouragement of playing according to their age and promotion of recreation periods<sup>(11,14)</sup>. Considering that the brain is formed by life experiences, sensorial stimulation (touch, sound, sight, smell, food, etc.) will affect the development of the nervous system and its functions throughout the life of the human being<sup>(12,15)</sup>.

Still in this dimension, an adverse situation is understood as the lack of or insufficient *physical protection and security*, which can endanger the survival and development of children due to the lack of security conditions that favor the maintenance of physical and physiological integrity<sup>(11)</sup>. In order to develop fully, children need physical protection, care and safe environments that can guarantee a healthy development from birth, through childhood until reaching adolescence<sup>(11)</sup>. Due to the presence of wars, famine, poverty and lack of health resources, many children do not have this protection guaranteed<sup>(16-17)</sup>.



**Figure 1** – Analytical matrix of vulnerability of children in adverse situations to their development. Adapted from Ayres, Paiva and França Jr<sup>(7)</sup>.

Physical protection and safety are expressed by prenatal care<sup>(18)</sup>, type of delivery and gestational age<sup>(19-21)</sup>, physiological conditions of the child<sup>(22-23)</sup>, health care and prevention of injuries to the child<sup>(14)</sup>, dietary pattern<sup>(14)</sup> and exposure to harmful agents or situations<sup>(11,14)</sup>.

**Social vulnerability**

In the social dimension, children may have difficulties in their development if there are insufficiencies or inequities in the *social insertion of family*, characterized by their socioeconomic and educational conditions. The position of the family in social production and reproduction determines their material conditions of life, their autonomy and their capacities of making decisions and of meeting the essential needs of the child<sup>(3, 24)</sup>. It is linked to vulnerability in child development as it may produce malnutrition, social deprivation and losses in educational activities<sup>(3,24-25)</sup>, as well as hampering the development of ongoing nurturing relationships between the family and the child<sup>(11)</sup>.

The social inclusion of the family is determined by the level of education of caregivers, education and professional qualification of the head of household, access to employment, *per capita* income and the dwelling conditions of the family<sup>(24-25)</sup>.

In this dimension it is considered that the *access to the rights of social protection and promotion* represents citizens’ reach to resources that will influence their decision making, their possibilities to overcome sociocultural barriers and of having conditions to look after their health<sup>(7)</sup>. Such resources may influence the care, education and protection of families in relation to child development<sup>(13)</sup>.

Access is related to the lack of or impediments to accessing health<sup>(3,26)</sup>, socio-educational institutions<sup>(2,24,26)</sup>, basic and special social protection<sup>(26)</sup>, citizenship<sup>(26)</sup>, recreation, leisure and culture<sup>(11,26)</sup>, equality of race, gender and religious belief<sup>(26)</sup> and political participation<sup>(26)</sup>.

**Programmatic vulnerability**

In programmatic dimension - related to policies and programs aimed at children - there may be difficulties in

its development if failures or noncompliance occur in the *political-programmatic scenario*. This can be defined as the political commitment of governments in establishing programs for the protection and promotion of child welfare that can help reduce child deaths and resolve the inequalities that determine the losses in their development. It is related to the level of investments that the State provides for the financing of actions of child care<sup>(2, 7, 27)</sup>.

This scenario is characterized by political commitment<sup>(2)</sup>, material and institutional sustainability of policies<sup>(28)</sup>, human and material resources<sup>(29)</sup>, definition of specific policies for child development<sup>(2,27-28)</sup>, intersectoral activities<sup>(14,26)</sup>, social and legal responsibility of services<sup>(5,7)</sup>, social control of the planning and implementation of policies<sup>(26)</sup>.

Thus, child development can be influenced by the *guidelines and political-programmatic implementation*, which constitutes the way care services to children develop its work process and its model of assistance in the provision of needs. It is the implementation of structural strategies in healthcare systems, which aim to redirect the model of health care and establish a new dynamic in the organization of health services and actions<sup>(7,10)</sup>. Policy guidelines formed in health programs arouse important questions about health needs, vulnerabilities, citizenship and human rights<sup>(27)</sup>.

The political-programmatic implementation is guided by the structure of programs for the care and protection of maternal and child health<sup>(18,26-28)</sup>, the ability of services

to provide comprehensive care<sup>(10)</sup> with equity of actions<sup>(10)</sup>, multi and interdisciplinary actions<sup>(10)</sup>, technoscientific capacity<sup>(30)</sup>, as well as commitment and responsibility of the professionals<sup>(10)</sup>.

## CONCLUSION

The proposed analytical matrix indicates that the model for health care should focus on protection and full development of children, as they are dependent on their support network for the care with their health. The practical application of this matrix allows apprehending the health-disease process beyond the individual dimension, enabling the articulation of public policies and actions of professionals in order to achieve effectiveness in meeting the needs of children.

This conceptual instrument is configured as a construct of theoretical proposition that can be used by health teams to specifically apprehend adverse situations to child development and support the development of new technologies of care, with the construction of action plans from the analytical dimensions of vulnerability. Thus, its content can guide discussions on planning and management of health care for children, contributing to the foundations of public policies.

Thus, the methodological validation of this matrix by further research focusing on its operation will contribute to advance the use of this health technology in the field of child development.

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