

# INFANT MORTALITY DUE TO UNDERNUTRITION AND POVERTY CONDITIONS IN TUCUMÁN (ARGENTINA): MAGNITUDES, SPATIAL MANIFESTATIONS AND FAMILY ACTIONS DURING THE EARLY 21<sup>ST</sup> CENTURY

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## 1. INTRODUCTION

At the end of 21st century first decade, Latin-American countries, in general, and Argentina, in particular, showed great progress in living conditions improvement –significant progress if our major reference is the comparison between the nineties-. However, there are some aspects that should be taken into account in order to contextualize those improvements: on one hand, it has been recorded in the last decade a standstill or deterioration in some fundamental aspects of social welfare, such as children nutritional status; on the other hand, high magnitudes of children with nutritional deficiencies are still perceived despite those improvements.

This fact alarmed about inequality in access to health care, particularly in childhood, and in a more general view about the big gap in living conditions of their population. In this respect, some authors stated that the Argentinian case was interesting because the country has suffered a severe phenomenon of epidemiological counter-transition in the last years due to the reappearance of under control diseases such as cholera, dengue, malaria, tuberculosis and undernutrition.

Contrasting these results with other sources, according to the Nutrition and Health National Survey (Encuesta Nacional de Nutrición y Salud ENNYS), made in 2004-05, it can be seen that in Argentina there is a surprising magnitude of children affected with anemia (also known as hidden undernutrition) which reached the 36% of children between 6 and 72 months in the province of Chaco, for example, being 16.5% the national average. These evidences demonstrated a country with deep regional asymmetries, and a big part of the problem of child undernutrition was unknown, particularly its magnitude, characteristics and spatial distribution.

The deterioration in employment indicators and the inequality in income distribution and widespread poverty, recorded during the nineties, created conditions for a strong worsening of the country's nutritional situation. In the early 21<sup>st</sup> century, particularly the year 2002, the problem of child undernutrition in Argentina took an unusual effect, consolidated –originally- in Tucumán. The number of undernutrition cases that went public were large and allowed a “re-discovery” of the problem. They were spread majorly in national and international journals, becoming visible in political, technical, academic and media fields. Undernutrition problem was far from being solved and gained incredible magnitudes in Argentina in general as in Tucumán in particular.

In this approach we pretend to go towards the detection of the main manifestations of chronic child undernutrition in Tucumán during the first years of 21<sup>st</sup> century, taking into account time trends and spatial distribution. This goal is strongly assembled with the strengths and limitations of the available information sources. It was also aimed to study, by means of analyzing cases in extreme poverty contexts, the actions developed by affected population to solve the problem, and the State intervention in the matter.

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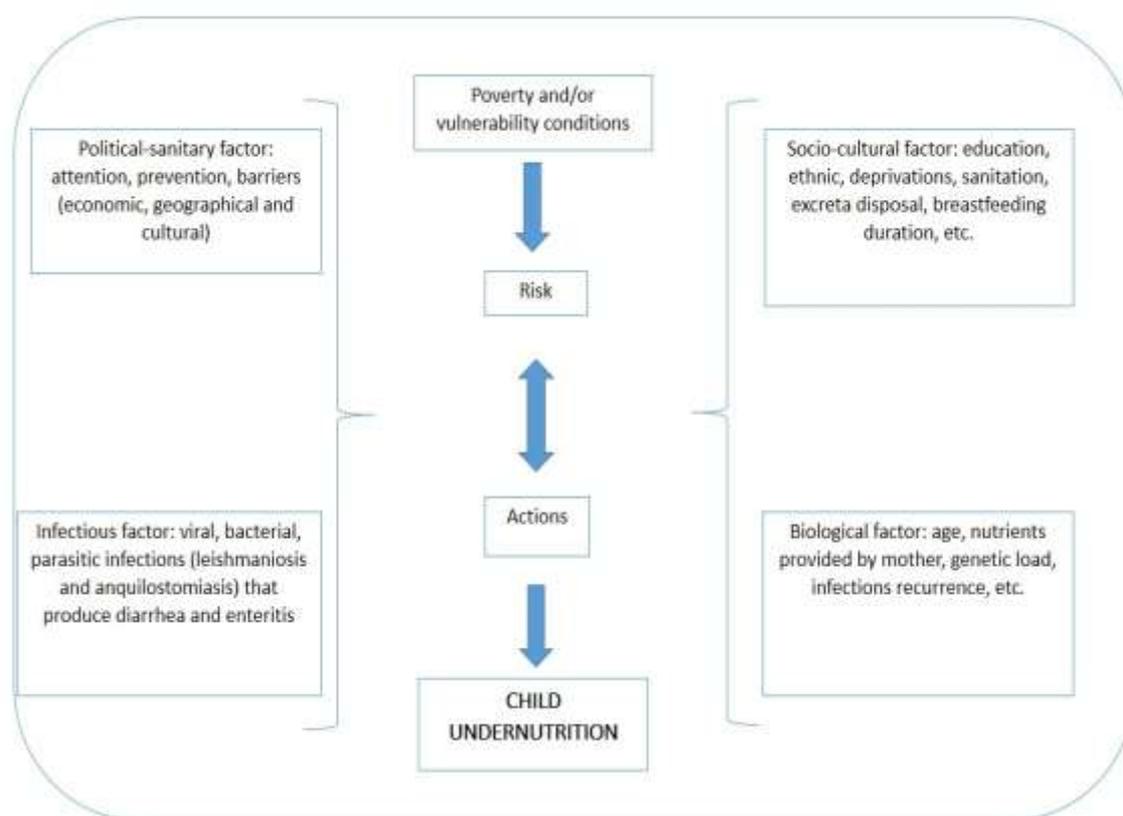
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## 2. THEORETICAL AND METHODOLOGICAL BASIS

Chronic child malnutrition is known as a pathophysiological result of an insufficient food intake, characterized by its continuity in time. It answers to processes in which intestinal absorptive capacity is reduced or to metabolic faults. Nevertheless, this insufficiency it is not only determined by biological factors but social, economic and cultural conditions that are important to understand the problem.

In picture 1 it is shown a theoretical model proposed for the analysis of chronic child undernutrition, including different levels and conditioning factors.

FIGURE 1  
Factors that influence child undernutrition appearance and development



The sources used were the mortality records taken by the National Health Department Statistics and Information Direction in the framework of the National Program of Health Statistics. Even though they represent the most tragic situation of health-disease process an individual passes by (death), it let us approach, from analyzing some types of death causes, the annual knowledge of the phenomenon.

In this respect, to reach the goals intended, two infant mortality rates due to undernutrition were created, one by direct causes; and the other one by associated or contributive causes of undernutrition. The first one relates the number of deaths recorded due to anemias and nutrition deficiencies regarding population under the age of five of the selected area, expressed every thousand children. The second one gathers the nature associated to infectious and respiratory pathologies in undernutrition cases.

A second methodological strategy in qualitative basis proceeded selecting firstly three study cases according to high concentration of poverty taken from the Household Material Deprivation Index (Índice de Privación Material de los Hogares IPMH). In those, semistructured interviews were applied to a random household sample. On poor households in which child undernutrition problems were detected, we investigated the characteristics of the

problem, actions and answers of the affected families, and the incidence of current social and sanitary policies.

### 3. RESULTS

The decline noticed in child mortality rates due to undernutrition as a direct cause of death between 1994 and 2012 was significant, but it also shows a response to the province's socioeconomic crisis, such as 2001-02 Crisis which had great repercussion on national and international journals. However, mortality rates due to undernutrition were even bigger in the years previous at that crisis. In 1994 for example, rates tripled the 2001/02 ones, with a mortality rate due to undernutrition that reached 0.14 every a thousand children under the age of five. Besides, since the 2001/02 Crisis it is observed a recovery of a descending tendency with thin peaks around 2008/09.

On the other hand, we found a complimentary analysis of associated (or contributive) causes of child mortality due to undernutrition. Even though its behavior tends to decrease, it has some important peaks, mainly around the years 2002 and 2007. Besides, there is an ascending tendency from 2010 to 2012. When we deconstruct this rate in its respiratory component and diarrhea syndrome, it can be seen clearly the diarrhea syndrome prevalence until 2005, and then respiratory infections occupied a major place in mortality contributive to undernutrition.

Regarding spatial distribution of infant death due to undernutrition, we saw a more complex overview where dynamics took a bigger place than stability in behavior. Nevertheless, there are departments distinguished by their high values in that kind of contexts, some of them are Alberdi, Río Chico and Burruyacú.

On the semistructured interviews applied to peripheral households, we could determine a result of poverty that characterize them, being precariousness and housing informality the ones that structure those territories. Building deficiencies are majority, including the significant presence of *casillas*<sup>3</sup> and *ranchos*<sup>4</sup>. A big part of the households are not owners of the grounds where they are settled. Wastewater services are not spread yet –being available for only the half of the households in one case- the overcrowding has a variable behavior, but reaches a significant level in Costanera Norte (50%) and Juan Pablo II (30%). Besides, it is add the lack of access to certain basic services as natural gas and paving; and a limited access to other services as public transportation, public lightning and garbage recollection. It is clear that the interviewed households are settled in a poverty context.

Investigating the relations between poverty as a context of undernutrition, we can see that, in these households, children nutritional status (children under the age of 14) reaches different magnitudes in the regarded places. In the case of Villa Muñecas Norte, it includes 9% of children population, in Barrio San Juan Pablo II, the 4%; and in Costanera Norte the 6%, according to the Summary of 2009 Round (Resúmenes de Ronda del año 2009). All these children take the first level of undernutrition.

It is frequent the presence of bronchopulmonary diseases and diarrheas in the affected children. The first line of assistance are primary care centers and if it gets worse, they turn to Hospital de Niños. Housing characteristics favour these situations, since in every case houses are precarious and are surrounded by a lack of access to basic services context. Some characteristics that promote the prevalence of such diseases are the absence of sewage system, the fact that garbage collection is done every three days, and unpaved streets.

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<sup>3</sup> Type of house (characteristic of urban areas) constructed with low quality materials or residues.

<sup>4</sup> Type of house (characteristic of rural areas) conformed by adobe walls, dirt floor and sheet-metal or thatched roof.

#### 4. CONCLUSIONS

Child undernutrition is maybe the most critical and cruelest manifestation of poverty, not only because its permanent damage but as an extreme form of infant mortality. It constitutes a deprivation and vulnerability nucleus that should be a priority in public policies.

However, there are many barriers for its knowledge and analysis, even depending on the scale to be used and the sources. This study, an investigation at provincial scale, with diachronic and synchronic approach, that articulates quantitative and qualitative methods, would not been possible with information collected only in surveys. This implied the formulation and development of methodological and conceptual tools that could address the problem with precision. Nevertheless, this formulation was contingent upon information sources and its characteristics, so we had to resort to a facet of extreme child undernutrition, that is to say, infant mortality, enabling us to approach a –minimum- part of the problem in the province, and from that point have a view (a limited scope) of the seriousness, magnitude, trends and ranges that it presents.

Which are the main manifestations of child undernutrition in Tucumán? Which magnitudes present currently? Which were the predominant trends? What is the population doing to solve the problem? Which is the impact of social and sanitary policies? These were the main questions that guide our different approaches in this investigation. The methodological development used for answering these questions implied the construction of an indicator subject to zoom in the studied issue with precision that was correlative to the theoretical and conceptual model. Infant mortality rate due to undernutrition (by direct and contributive causes) tried to reach those requirements. This rate –that in some way becomes an extreme indicator by considering just mortality and leaving aside morbidity- included not only direct deaths recorded and codified by undernutrition, but also those associated or contributive of undernutrition cases, such as diarrheas, septicemia, pneumonia, bronchiolitis, parasitism. These diseases reveal the level of nutritional vulnerability in which are subjected determined populations and how it relates to undernutrition.

This rate's calculation and analysis, in a diachronic approach –from 1994 to 2012- as well as a synchronic one and spatial distribution, allow us to find results that confirm a standstill process in its epidemiological transition, with the reappearance of certain pathologies associated to undernutrition, and the existence of high magnitudes in some of them. These characteristics deepen a socioeconomic gap that consolidates a socio-territorial fragmentation with profound consequences in social welfare, expressed at a social, economic, politic and cultural level, even reaching ethical and moral levels.

Even though the great progress in poverty reduction and the improvement of children living conditions on the early 21<sup>st</sup> century –if they are compared to the nineties- great magnitudes are noticed on the rates of child undernutrition in Argentina, in general, and in Tucumán, in particular. The sources used allowed us to distinguish 110 children deaths directly due to undernutrition in the province, and other 625 due to pathologies related or associated to the nutritional situation, showing the existence and consolidation of a problem that, having this level of knowledge and information, should have been eradicated from the province.

The study of cases applied to poor houses with children that suffer chronic undernutrition, show the intimate relation of poverty with child undernutrition, as a structural condition that is not only linked to low income but to housing precariousness and building conditions. They constitute vulnerability factors that, in most cases, imposed over family actions to solve the problem. The State responses that have been working have an assistance nature address to lessen the effects of social and sanitary deterioration without ensuring a minimum of appropriate satisfaction. They do not know, on the other hand, structural aspects of the condition detected. Finally, they do not really matter about the projects to prevent the problem.

Far for being a past situation, child undernutrition constitutes one of the problems with bigger relevance nowadays, identifying from its concentrations, at least, different territories with dissimilar living conditions that share a same nation and a same province. The evidence found shows that undernutrition, even though it has decreased, present magnitudes that place it as one of the most important public health provincial problems, influencing high morbidity and

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mortality rates, just like the prevalence of certain chronic diseases, hard to quantify. Likewise, the disease economic cost is also too high (hospital charges, productivity, educational charges, less purchasing power, etc.) and the permanent cerebral damage that generates, also hard to quantify, but with deep ethical and moral connotations.