IS HOUSEHOLD SOCIO-ECONOMIC STATUS RELEVANT FOR TARGETING NUTRITION INTERVENTIONS IN AFRICAN URBAN SETTINGS ?

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INTRODUCTION

The cost-effectiveness of a nutrition intervention depends on its appropriate targeting. Malnutrition is generally linked to overall poverty. So intervention programmes are being set up in large African cities on the basis of combined geographic and socio-economic data.

The causes of malnutrition are complex and can include, as well as socio-economic factors, the familial environment. Targeting can be based on identifying risk factors for poor growth on the premise that individuals with these caracteristics are the most in need of nutrition intervention.

The aim was to test different types of criteria to target malnourished children. We studied the relationship between the nutritional status of 6-35 mo children and the variables describing their environment at 3 different levels: district, household, child. The relevance of the targeting levels was evaluated by the effectiveness of pinpointing undernourished children.

METHODS

Representative samples of households with at least one 6-35 mo child in two urban areas in Senegal were randomly selected by cluster sampling after stratification on the districts. The surveyd cities were Pikine, a fast growing urban complex close to the capital city, Dakar, and Kaolack a large inland city. Sample sizes were 2 378 children in Pikine (all districts), 1 921 children in the poor districts of Pikine, and 2 306 children in the poor districts of Kaolack. Anthropometric measurements, as well as data on socio-economic and housing conditions were collected.

Anthropometric measurements were taken according to standardized procedures. The weight-for-height and height-for-age indices were presented as deviations in Z-scores from the CDC/WHO reference population mean value. The <-2 Z-scores cut-off point defined wasting and stunting.

Households were clustered according to 25 descriptors of the household and the head of household by correspondence analysis and hierarchical classification.

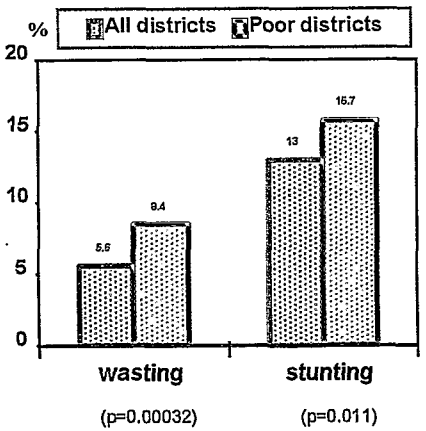
Among the 35 variables describing the child environment, risk factors for wasting (children 12-23 mo) and for stunting (children 24-35 mo) were assessed by logistic regression. A sensitivity/specificity analysis of the targeting at the child level was performed (jackknifed ROC curve).

RESULTS

1 - At district level

The prevalences of wasting and stunting were higher in the poor districts of Pikine than in the whole city **Fig. 1**. Targeting at the district level was relevant to reach significantly more malnourished young children.

Figure 1. Prevalence of malnutrition in Pikine



2 - At household level in poor districts

The multivariate analysis of the 25 variables resulted in four clusters of households which reflected different socio-economic realities. They were arbitrarily numbered from 1-4. The result was almost the same for both cities.

Cluster 1 = well housed, regular income, well-off
Cluster 2 = well housed, long-term residents, low income
Cluster 3 = badly housed, long-term residents, low income
Cluster 4 = badly housed, recently installed, poor

Significant differences in the prevalence of wasting and of stunting were found in Kaolack but not in Pikine (**Table 1**).

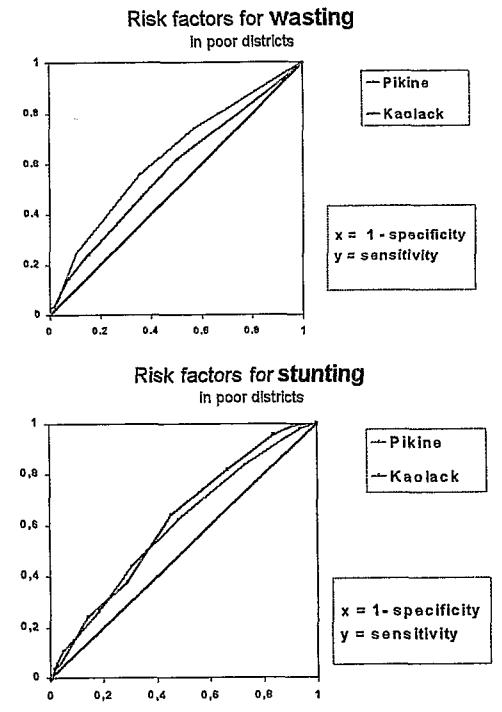
Table 1. Prevalence of malnutrition in the 4 socio-economic clusters in the poor districts

PIKINE	Cluster 1	Cluster 2	Cluster 3	Cluster 4	p	TOTAL
Wasting	n=471	n=189	n=653	n=396		n=1 709
Prevalence	8.7 %	9.0 %	9.8 %	6.1 %	0.21	8.5 %
C.I. 95%	[6.2 ,11.2]	[4.9, 13.1]	[7.5, 12.1]	[3.7, 8.5]		[7.2, 9.8]
Stunting	n=468	n=187	n=648	n=395		n=1 698
Prevalence	13.9 %	10.7 %	17.4 %	16.7 %	0.090	15.5 %
C.I. 95%	[10.8, 17.0]	[6.3, 15.1]	[14.5, 20.3]	[13.0, 20.4]		[13.8, 17.2]
KAOLACK	Cluster 1	Cluster 2	Cluster 3	Cluster 4	p	TOTAL
Wasting	n=462	n=418	n=624	n=630		n=2 134
Prevalence	6.9 %	8.6 %	10.1 %	13.5 %	0.0035	10.1 %
C.I. à 95%	[4.6, 9.2]	[5.9, 11.3]	[7.7, 12.5]	[10.8, 16.2]		[8.8, 11.4]
Stunting	n=462	n=415	n=617	n= 624		n=2 118
Prevalence	14.9 %	18.1 %	18.3 %	22.4 %	0.017	18.7 %
C.I. 95%	[11.7, 18.1]	[14.4, 21.8]	[15.2, 21.4]	[19 1, 25.7]		[17.0, 20.4]

3 - At child level in poor districts

Discrimination was not very efficient for the two cities: no threshold probability of wasting nor stunting led to a sufficiently high rate of true positives respectively a low rate of false positives (**Fig. 2**).

Figure 2. ROC curves



CONCLUSION

The comparison of the prevalences of malnutrition between the city as a whole and the poor districts of Pikine showed the significance of targeting at this level.

In the poor areas, the targeting based on household's socio-economic criteria was efficient in Kaolack where malnutrition appeared more closely related to poverty, but not in Pikine. In both cities, at the child level it was difficult to target malnourished children according to descriptors of familial environment.

In this context, an efficient targeting of nutrition interventions at this level must still rely on a direct measure of the nutritional status.

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