Nutritional Risk Factors in a Well Baby Clinic

Pages with reference to book, From 335 To 338

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Abstract

Cross sectional data from a "Well Baby" (immunisation) clinic over a period of 1 year and certain associated environmental factors were studied to establish if any of these "risk factors" were significant in causing malnutrition. Thus the concept of "at risk" child has been highlighted for the under priviledged paediatric population (JPMA 34: 335, 1984).

Introduction

Protein Calorie/energy Malnutrition (PEM) is a significant problem in Pakistan. According to a Planning Commission study 60% of our children need some nutritional intervention. Out of these 7% are severely malnourished.[1]

A previous retrospective analysis of data from the irnmunisation clinic revealed that over fifty percent of otherwise well babies were malnourished[2] and the percentage and degree of malnutrition increased with age. PEM largely contributes to the morbidity and mortality of children. It is recognised now that intervention should be initiated before malnutrition becomes overt to be more effective. Children at risk for developing PEM should be identified and kept under close supervision to prevent malnutrition.

The concept of ' at risk ' childrenv[3] was evolved to provide concentrated care to children who are exposed to certain environmental disadvantages before or after birth. This type of care is more cost-effective, in the limited facilities in underdeveloped countries can be concentrated towards the care of a smaller number of children.

If a sample of children is followed from birth onwards, some of them are found to do well whereas others loose weight and have an increased incidence of illness and mortality. Various workers, have studied such children in under-privileged populations[4]. In St.Lucia[5], West Africa[6] and India[7] well nourished and malnourished children were studied to establish environmental factors which seemed to affect malnourished children. Factors present predominantly in children who did poorly, were then called Risk Factors (R.F.). They can be defined as environmental variables that expose the child to a greater risk of developing PEM and having a higher morbidity and mortality.

Some of these factors are common to all populations, but others vary with the environment specific to each region. This preliminary study was undertaken to identify the risk variables in karachi population.

Material and Methods

This prospective study started in December, 1982 and will be completed by December.. 1985. The cross-sectional data presented here is based on initial measurements recorded on all babies from December, 1982.to December, 1983. The main objectives were identification of possible environmental factors which could lead to malnutrition in babies. These 'risk factors' were hypothesised and their effect on the nutrition and health of the child has been studied.

Initially, every mother was interviewed by a doctor to identify the baby's exposure to each risk factor. Then a physical examination was done and the infant's weight and height measured and recorded. On subsequent visits the above measure ments and the number ot episodes of illness were recorded. Illness was defmed as fever and/or respiratory and/or gastrointestinal symptoms.

Gomez's criteria was used to classify children into grades of malnutrition[8] and frequency distribution to determine the prevalence of malnutrition. A CM-square test of significance was used to show significant association of risk-factors with malnutrition.

Results and Discussion

A total of 2947 children were recorded with a sex ratio of 1: 1. 1. The percentage of children with normal weight for age was 52, whereas 48% were malnourished. There were 29.47% with Grade-I PEM, 15,48% Grade-lI and 2.95% Grade-Ill. Similar frequency has previously been reported from our unit. The frequency distribution of children with PEM is given in fig. 1 and 2 which show that although P.E.M.

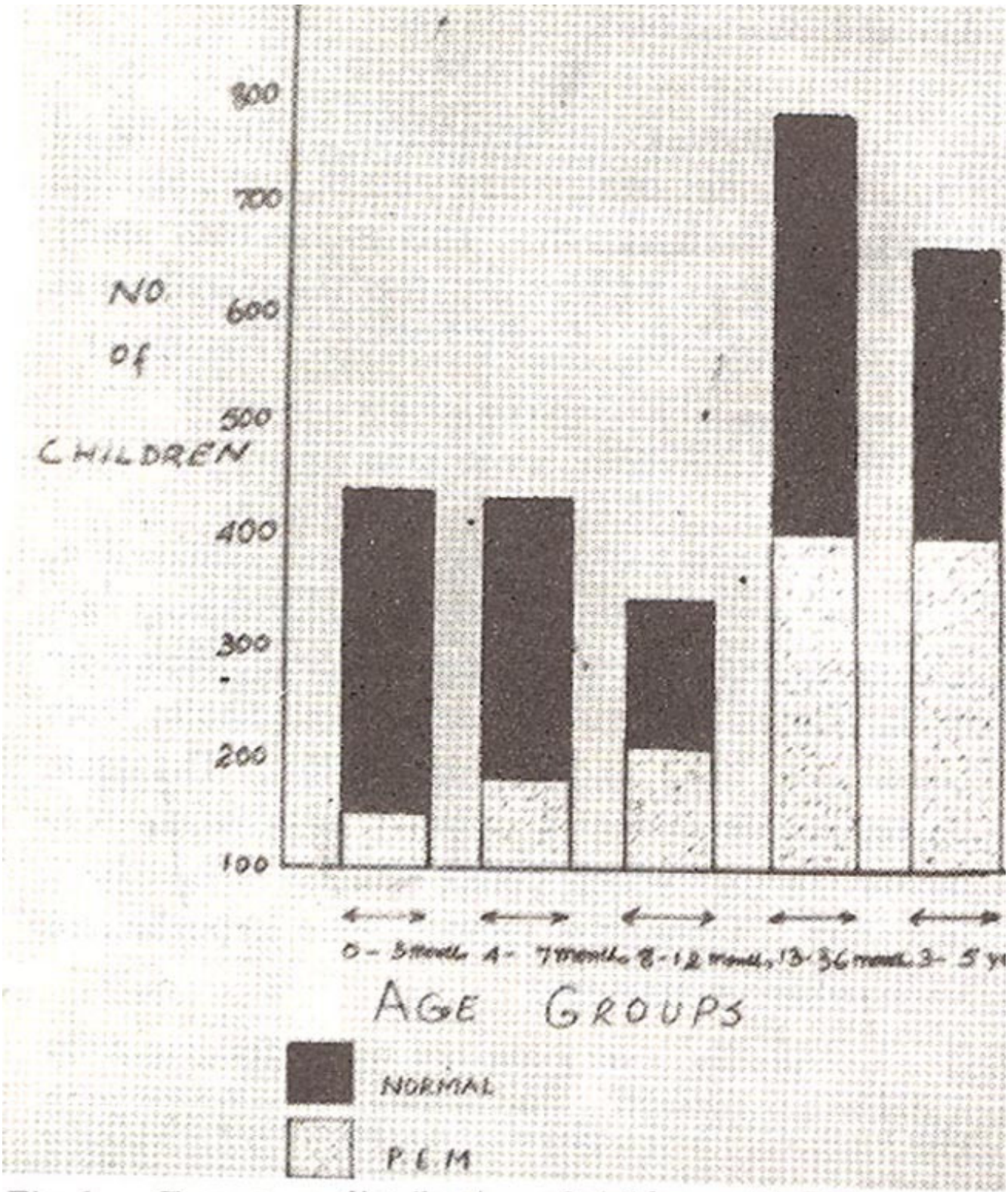

Fig. 1 Frequency distribution of children with PEM.

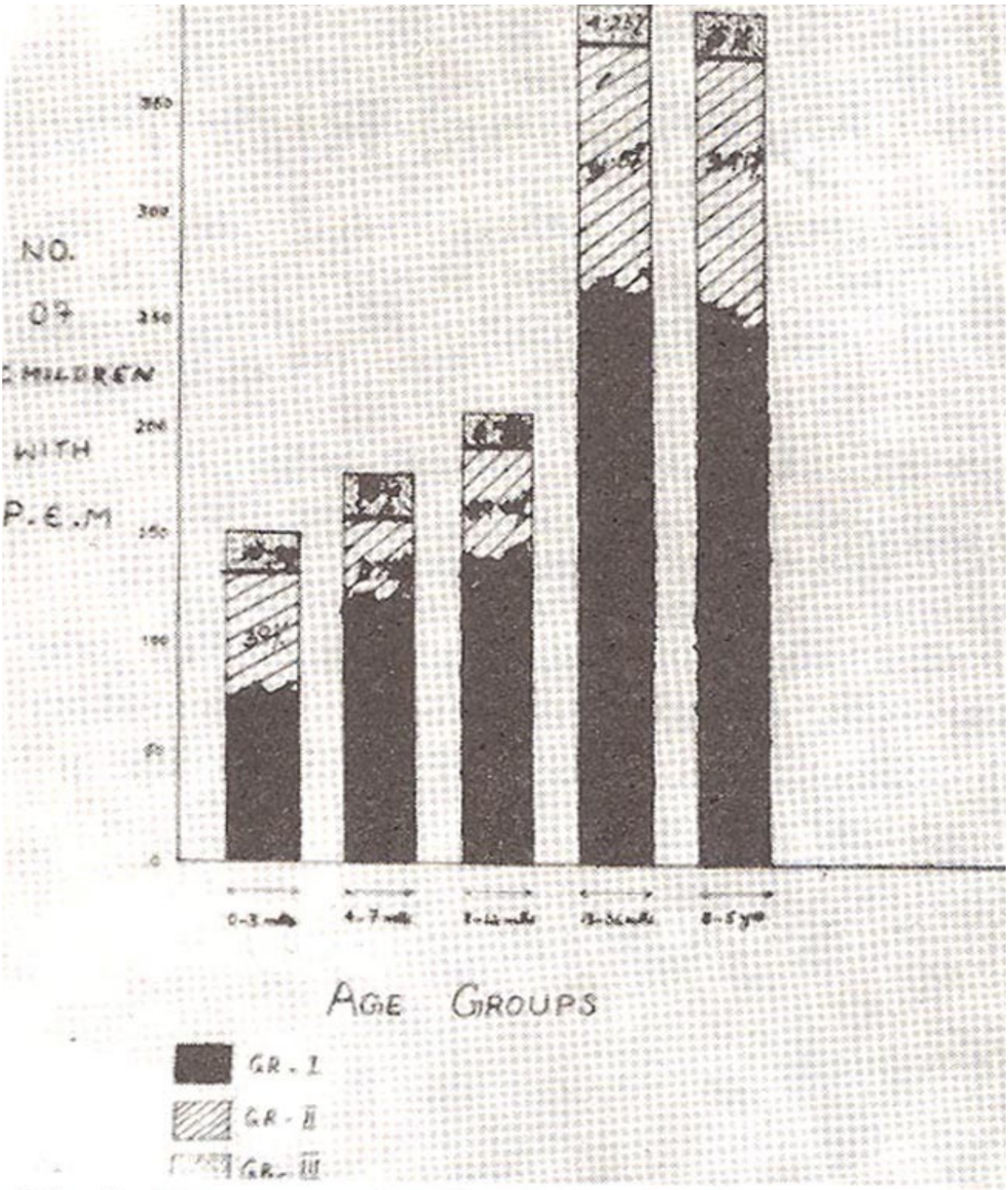

Fig. 2 Frequency distribution of children with PEM.

is present even between 0-3 months of age, its frequency and severity increases with age, and becomes maximum at 13-36 months which pro bably reflects delayed and improper weaning.

Table –1 Hypothesised Risk Factors.

1. Step mother / Step father
2. Illiteracy (father)
3. Illiteracy (mother)
4. Large family (> 5 children)
5. Low rank in family (>5)
6. Low family Income (⩽Rs. 1000/mth)
7. Working mother
8. Environmental insanitation
   a) Overcrowding (>3 persons/room)
   b) No indoor toilet facilities
   c) No running water
9. Ante natal, perinatal complications
10. Previous still births
11. Previous death of sibling
12. Absence of breast feeding (< 3 months of age)
13. Previous illness (<3 months of age)
14. Congenital abnormalities
15. Delayed weaning (>6 months of age)

Table 1 shows Risk Factors that were hypothesised and Table-II

Table –II

R.F. Affecting Nutrition in Total Population Exposed to Them.

No:	Risk Factor	Chi–Sq.
1.	Large family	* * *
2.	Environmental insanitation	* * *
3.	Late weaning	* * *
4.	Illiteracy of mother	* * *
5.	Illiteracy of father	* * *
6.	Low family income	* * *
7.	Illness during 1st year of life	* * *
8.	Previous death in sibling	* * *
9.	Antenatal, perinatal complications	* * *
10.	Low rank of child in family	* *

* * * P < 0.001

* * P < 0.01

the risk factors (R.F.) found to affect nutrition significantly. They are given in order of their significance (weighted). Of fifteen hypothesised variables, ten were found to affect nutrition.

Table – III
R.F. Affecting Nutrition, Comparing Population Exposed to Vs. not Exposed to R.F.

No.	Risk Factor	Chi-Sq.
1.	Large	* * *
2.	Environmental insanitation	* * *
3.	Illness during 1st year	* * *
4.	Illiteracy of father	* *
5.	Late weaning	* *
6.	Previous death of sibling	* *

* * * P < 0.001

* * P < 0.01

In Table III these factors have again been studied by comparing the populations that were exposed to these risk factors and those not exposed to them. A total of six variables were found to be statistically significant (given in order of their significance or weight). A further analysis was carried out to evaluate if any of the risk factors affected the severity of malnutrition. This was not statistically proven.

Table – IV

R.F. in Karachi Compared with Those found Significant in a West African Community.

	West African Village	Civil Hospital, Karachi
1.	Maternal Wt.<43.5 Kg	Not studied
2.	Low rank in family	Yes
3.	Breakdown of marriage or death of parent	No
4.	Death of sibling	Yes
5.	Birth weight below 10th Centile	Not studied
6.	Failure to gain adequate weight during pregnancy	Not studied
7.	Absence of breast feeding	Late weaning more significant
8.	Illness in early months of life	Yes

In Table IV a comparison has been made between the risk factors identified in West Africa[5] Most of these were also found to be significant in the present study, but some were specific to our environment. Babies can be exposed to two or three of these environmental factors at one time. Whether simultaneous exposure to more than one risk factor multiplies their risk of developing malnutrition, remains to be studied.

To make delivery of preventive care more effective, babies attending immunisation clinics should be evaluated initially' for the determined risk factors. Babies 'at risk' should then be given special attention with nutritional advise and close supervision. Such measures would hopefully prevent malnutrition and decrease morbidity, metality and cost of health care delivery.

References

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