Evaluation of a Nutrition Unit in Winterveld, South Africa. Record Analysis: Part 3

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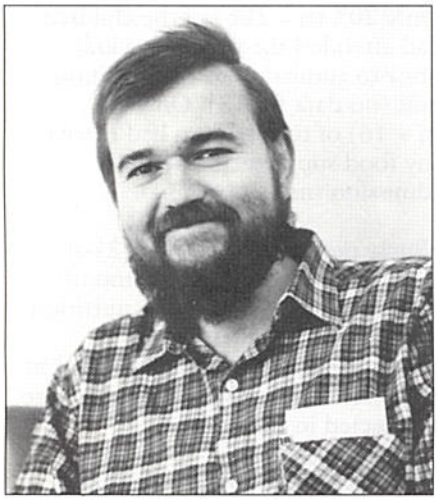

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Curriculum vitae

Paulo Ferrinho had his school education in Mocambique and then went on to the University of Cape Town to obtain the MBChB in 1980. He did his internship at the Groote Schuur Hospital in Cape Town and then worked at the Gelukspan Community Hospital from 1982 to 1986. After that he became a registrar in Community Health at the University of the Witwatersrand. He then became the Clinic Manager and Director for Research of the Alexandra Health Centre and University Clinic/Institute for Urban Primary Health Care until 1991. Currently he is at the Institute of Tropical Medicine and Hygiene in Lisbon. Although specialising in Community Health, his professional interest remains in support to primary health care.

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Summary

We report on an evaluation of a Nutrition Rehabilitation Unit (NRU) at the request of Medecin du Monde (South Africa) on behalf of the St Peter's Health Centre (SPHC) in Winterveld.[1] Winterveld is a sprawling squatter camp north of Pretoria, the capital of South Africa, with huge socio-economic and environmental problems. The prevalence of protein-energy malnutrition in the community was recently measured but the results are still not available. Nevertheless malnutrition is a common clinical problem at the SPHC. For this reason a NRU was initiated in 1989. The evaluation had two main components: an unstructured interview with health workers at SPHC and the NRU and an analysis of all the records of patients admitted to the unit since it opened. The results of the unstructured interview have been previously reported.[2] Here we report on the analysis of all patient records admitted to the NRU between April 1989 and April 1991.

The major conclusions are that the malnourished children admitted to the NRU come from a background of severe poverty, poor environmental conditions, high rate of infections and inadequate attendance of well baby care. Patient management at the NRU seems inappropriate with poor record keeping, high rates of failure to gain weight, of infections and of failing to complete treatment. The major recommendation is that the problem of malnutrition should not be addressed as the problem of the NRU. It is a community problem that needs to be addressed comprehensively by community structures and all levels of health workers. The NRU should be seen as a last resort.

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KEYWORDS:
Nutrition Surveys; Ambulatory Care Facilities; Evaluation Studies; Records.

The Results of the Record Analysis

The quality of the data recorded was poor. Missing or unreadable data items were common. As sex was not recorded anywhere it was not possible to study the anthropometric variables in detail.

Five hundred and fifty six (556) admission records were analyzed. The results are reported as: family data and income; environmental conditions; data on health services utilization; admission data; and some correlations between variables.

Family Data and Income

The caretaker of the child was the mother in three quarters of the cases. Only in 3% of cases was the child cared for by someone outside the family network (Table I). Factors that interfered with the mother's ability to look after the child are reported in Table II.

Forty percent, 40% (n = 216, no data on 20) of the mothers were married. The mean number of children per mother was 3 ± 2 [range 1 (27%) - 12 (0,4%), median 2, mode 1]. Fourteen percent (14%) had more than 6 children (no data on 10).

The sibling order of the index child was 3 ± 2 (no data for 22) (median 2, mode 1, range 1 to 9).

Sixty seven percent, 67% (n = 363, no data for 11) of the children were supported by the father. When the father did not provide support, the breadwinner was one of the grandparents in 48%, the mother in 20%, other person in 27% and no one in 4% of the cases.

Their malnutrition is related to a complex of poverty and infection.

Only 60% (n = 331) of the households had a cash income (mean of R268 ± 232). Of these, 28% had an income of < = R100 per month, 52% of < = R200, 82% of < = R400 and 98% of < = R900.

Environmental conditions

Ninety one percent, 91% (n = 480) reported toilet facilities. Only 27% (n = 140) had a tap in either the yard or the house.

Seventeen percent, 17% (n = 88) had poultry, 2% (n = 8) kept cows and 1% (n = 6) goats. Eighty one percent, 81% (n = 427) did not keep any animals with the potential of being used as a nutritional resource (no data for 27).

Only 14% (n = 76) maintained a vegetable garden.

Health Services Utilization

Fifty two percent, 52% (n = 286) of the mothers were on family planning. Twenty percent, 20% (n = 45) of the mothers not on family planning, expressed the willingness to start on one of the modern methods (no data for 10).

Tabel I. Relationship of the caretaker to the child

Caretaker	Number	Percentage
Mother	406	74
Grandmother	71	13
Other Relatives	55	10
Unrelated	19	3
	551	100%

A total lack of foodgrowing projects.

Table II. Factors that interfere with the Mother's ability to care for the child

Factor	Number	Percentage
Employed	96	18
Scholar	23	4
Dead	6	1
Ran away	5	1
Sick or Abnormal	5	1
In Jail	1	0,2
None Mentioned	420	75
	556	100%

Only 20% (n = 106) of the children had attended the well baby clinic prior to admission to the nutrition unit (no data for 13). Only 3% (n = 16) of the children had received any food supplements before admission (no data for 14).

Ninety percent, 90% (n = 472) of the children had been ill in the months preceding admission to the nutrition ward (no data for 31). The commonest problems are reported in Table III. The source of curative care is reflected in Table IV.

Table III. Health Problems Before Admission

	Number	Percentage
Diarrhoea and Vomiting	219	46
Cough	85	18
Loss of Appetite	59	13
Fever	14	3
Diarrhoea/ Vomiting/ Cough	11	2
Skin Rash	9	2
Other	75	16
	472	100%

Admission to the NRU

The diagnosis of the children on admission to the nutrition unit is reflected Table V. Twenty seven percent 27% of the malnutrition was attributed to maternal ignorance.

Ten percent, 10% (n = 54) lost weight while in the NRU and 29% (n = 156) did not gain any weight (no data in 25).

The average number of visits to the NRU was 12 ± 17 spread over an average period of 74 ± 104 days.

Only 13% (n = 71) of the total number of children completed the course of treatment. Forty nine percent, 49% (n = 274) had some type of infection while at the NRU.

Table IV. Source of Curative Care for the Last Disease Preceding Admission

	Number	Percentage
St Peter's Health Center	228	52
General Practitioners	112	25
Hospital	64	14
Traditional Healer	26	6
Home	12	3
Church	6	1
Chemist	4	1
	452	102%
* TOTAL > 100 Because 9 gave 2 choices		

The Highest Risk Age Group

Children in the age group 6 - < 12 months have the highest number of recorded visits to the NRU, have the lowest rate of weekly weight gain and have the lowest cash financial support.

Determinants of some of the Measurable Outcomes

Some of the determinants of measurable outcomes that are of interest are determinants of number of visits; average weekly weight gain; developing obvious infection while at the NRU; completing the course of treatment; cash income; family planning.

Determinants of number of visits to the NRU

Patients that develop infections, that complete the course of treatment and in the 6 - < 12 months age group have higher than average attendance of the NRU. After multivariate analysis (general linear model) only development of infection remains statistically significant (p = 0,0001).

Determinants of the average weekly weight gain

Average weekly weight gain is lower for children in the age group 6 - < 12 months, that develop an infection while at the NRU and who never complete the course of treatment. After multivariate analysis (general linear model) only failure to complete the treatment (p = 0,0071) and development of infection (p = 0,0211) remain as statistically significant determinants.

Table V. Health Worker Diagnosis on Admission

Diagnosis	Number	Percentage
Infection	167	35
Ignorance	112	23
Social Problems	69	14
Lack of Food	49	10
Lack of Food + Social Problems	47	10
Infection + Ignorance	11	2
Infection + Social Problems	9	2
Lack of Food + Infection	7	2
Lack of Food + Ignorance	7	2
	478	100%

Variables associated with the development of infections while at the NRU

Children that develop an infection while at the NRU are more likely to be under the care of the mother, to have a higher number of visits to the NRU, to complete the course of treatment, to have a younger average age and to have a lower rate of weight gain per week. After stepwise logistic regression only the number of visits to the NRU remain statistically significant (p = 0,0000).

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Determinants of not completing the course of treatment

Children that do not complete the course of treatment are younger, visit the NRU less frequently, grow at lower weekly rate and are less likely to be infected while at the NRU. After stepwise logistic regression only age ($p = 0,003$), development of infection ($p = 0,005$) and low rate of weekly weight gain ($p = 0,016$) remain statistically significant.

Determinants of cash income

Married women, reporting a higher than average number of children, support from the father of the child, higher sibling order for the index child and with children outside the 6 - < 12 months age group, have a higher cash income. After multivariate analysis (general linear model) only the marital status of the mother remains statistically significant ($p = 0,0001$).

Low percentage of malnutritions below 6 months (when still breast feeding).

Family planning

Women are more likely to be on family planning if married and if reporting a lower than average number of children. After stepwise logistic regression only the marital status of the mother ($p = 0,012$) remains statistically significant.

Discussion

It is apparent that the syndrome of malnutrition in the children served by the NRU is related to a complex of poverty and infection. Other factors that need consideration in programme development are the lack of availability of water supplies at least at yard level, an almost total lack of food growing projects, poor attendance of well baby care services and failure of early use of food supplements. The uptake of family planning methods is reasonable and there is an acknowledged willingness to use them by at least 1/5 of those not using them.

It is obvious from the results that the NRU is not meeting the expectations of either the health workers (many children lose or do not gain weight) or the mothers (the majority of children leave the unit without completing the course of treatment). The records are incomplete (the sex

Table VI. Recommended Interventions

Problems	Recommendations	Measurable Objectives
Poverty	Income generating awareness of FP welfare grants	100% awareness of FP all children or elderly
Water supplies	one tap in every yard	decide in consultation
Food growing/ buying	Vegetable plots individual poultry cooperative projects bulk buying scheme	
Poor WBC	> 90% under five children to attend aggressive case finding of malnutrition and weight faltering Clear nutritional policy liberal food supplements	
Curative Care	Effective use of antibiotics liberal food supplementation oral rehydration therapy	
NRU	Strict admission criteria better record form better record keeping specify nutritional diagnosis avoid blaming the mother isolation of infectious cases clear management protocols	

of the child is never recorded, height is rarely checked and a nutritional diagnosis is never mentioned) and many times inappropriate (giving the cause of malnutrition as ignorance of the mother is obviously inappropriate in the presence of such massive poverty and deprivation).

The low percentage of malnutrition below 6 months of age suggests extensive adherence to breast feeding for the first semester of life.

Recommendations

The recommendations are summarized in Table VI. It is obvious that the problem of malnutrition in Winterveld should be fought outside the nutrition unit.

Temporary and urgent measures should be taken at well baby clinics

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The NRU is not meeting the needs of the health workers nor the mothers.

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and in consulting rooms of doctors and nurses. Food supplementation needs to be done on a larger scale. Admission to the NRU should be a last resort in the presence of severe malnutrition (marasmus or kwashiorkor). Unexplained growth faltering should be investigated at outpatient level before referring to hospital. The possibility of social welfare grants should be aggressively pursued for abandoned or neglected children.

Long term measures are more difficult. At household level there is a need to increase accessibility to water and to promote food growing projects.

At community level, mothers of malnourished children need to be organized into networks of community groups. These could be the focus for political pressure, for income generating activities, for community based support structures, for bulk-buying schemes, etc. A community development worker should be employed for this purpose.

References

1. Ferrinho P. Report on an evaluation of a nutrition unit in Winterveld, South Africa. Provisional Report submitted in June 1991. Alexandra Health Centre and University Clinic and Institute for Urban Primary Health Care, 1991.
2. Ferrinho P, Labrouche M, Mkhwanazi A. Report on an Evaluation of a Nutrition Unit in Winterveld; South Africa. Unstructured Interviews. Part 2. S Afr Fam Pract 1993; 14: 203-7

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