Nutritional Survey of Welfare Centres - Jaffna District

2001

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Nutritional Survey of Welfare Centres - Jaffna District 2001
Memorial Publication of late Dr.Nadarajah Sivarajah
Published in March 2022

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late Dr.Nadarajah Sivarajah
on his Third Anniversary Event

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Third Year Memorial Publication of
Late Dr.N. Sivarajah
02nd March 2022

Thaaramaai Thaayaanavar - An Unforgettable Third Year

Dearest Appa,

Nutrition had been one of the favorite subjects, close to your heart during the past 50 years of your health and medical career.

You earned remarkable social recognition for conducting workshops on nutrition, presenting research papers, publishing articles, disseminating relevant nutritional information to the general public, and in particular to medical professionals, health activists, teachers, students and volunteers committed to community services.

Your thoughts and actions had always been following the golden rule 'Prevention is better than cure'.

Even as early as 1980's working as Medical Officer of Health (MOH) Kayts, you emphasized the importance of nutrition among pregnant & lactating mothers, Infants & preschool children and conducted workshops, seminars, and training programs in various nutritional aspects to the Family Health Officers, members of mothers club and volunteers. These activities showed positive improvement in the nutritional status of the above vulnerable groups in your area.

It is accepted that nutritional food is important to everyone. But it is more important and essential in certain stages of our human life and development. Realizing this fact, it is not surprising that your attention was drawn more towards the people in pregnancy, lactation, adolescence and childhood stages.

In 1993, you were instrumental to prepare a preliminary report on "Nutritional survey of children in the Jaffna District", with the assistance of the Jaffna District Council Non-Governmental Organizations, FORUT, Redd Barna (Sri Lanka), SCF (UK). This

survey provided valuable data and information with appropriate recommendations to effectively improve nutritional standards in the community. The same year Dr.Sivapathasundaram memorial lecture on 'Nutritional status of our children (33 pages) emphasizing the poor nutritional status of the children and methods to solve them led others to take action.

Being the editor of 'Suhamanchari' with the support of Prof. Nanthi, Dr.C.S. Nachinarkinian and your sincere students working in the Dept. of Community Medicine and with the financial assistance provided by UNICEF, you distributed 'Suhamanchari' free of charge. The articles on nutrition were of great use to the readers. These articles on nutrition were later compiled and published as a book - Nutritive value of food items' in 2006.

Your activities on nutrition has been accepted totally by all concerned resulted in the improvement in the poor nutritional status of the affected population following the internal displacement, natural disasters, shortage of essential food items and lack of knowledge in nutrition.

The Nutritional survey of welfare centres, Jaffna District 2001' funded by the World Food Programme, Colombo is being published by me as a token of unforgettable third year anniversary.

I am pleased to convey.my sincere thanks to Dr.C.S. Nachinarkinian for his comprehensive forward, Mr.N.Selvarajah for his continuous support, and the staff of the Department of Community & Family Medicine for their encouragement

By the grace of almighty, I wish to continue to do the good work you have been doing in your memory.

Malaiaracy Sivarajah

Preface

Malnutrition is rampant and a common problem all over the world. However under nutrition is a common problem in the third world countries especially in Africa and South Asia. Sri Lanka's nutritional status started taking downward trend with the internal war affecting the war-torn Northern Province affecting mostly the Jaffna district which was more populated and depended on the other districts of the North for the staple foods and other subsidiary crops.

The war, destroyed the crops, discouraged cultivation and maintenance of the farming machineries, fuel was not available, district border closures - all led to a situation of under nutrition mostly affecting the under 5 children and pregnant mothers.

Late Dr.N.Sivarajah was a far sighted, socially conscious, conscientious medical doctor and my friend for more than fifty years and a colleague in the Department of Community Medicine of the University of Jaffna for almost a decade in the nineteen nineties, during the height of the war.

Obviously Sri Lanka's health authorities excluded war affected North Eastern province in their official survey publications on nutritional status.

The socially conscientious Late Dr.Sivarajah felt the need for a nutritional survey of the population. What he could manage with the financial and manpower resources was to do a survey in the welfare centers in the Jaffna district. The nutritional survey was conducted by the World Food Pregramme, Colombo, as part of the survey of selected areas of the country. This came "handy" at the appropriate time to Dr.Sivarajah and his team.

We as the local population are indebted to Late Dr.Sivarajah for these findings and recommendations to prevent a catastrophe.

By this publication, Dr.Siva with his survey team had done just what the Great Sage Thiruvalluvar stated in kural 722,

> "*கற்றாருள் கற்றார் எனப்படுவர் கற்றார் முன்*
> *கற்ற செலச் சொல்லுவார்*"
>
> குறள் 722

Siva had been a ***கற்றாருள் கற்றவர்.***

As commented by Dr.C.S.Nachinarkinian

Acknowledgement

This survey was conducted for the World Food Programme, Colombo as a part of the survey of selected areas in the country.

I am grateful to the following, who made the survey a success.

- The under mentioned medical students who did the interviews, measurements and subsequent analysis.

  R Surendrakumaran

  K Ganeshananthan

  G Senthuran

  S Sathees

  R Gobith

  D Hilton

  N Suganthan

  A Pratheeb

  A Sutharjan

- Dr (Miss) Rajananthini Thambipillai, Demonstrator, Department of Community Medicine carried out medical examination in the welfare centres.

- Ms Malaiaracy Sivarajah, Technical Officer attached to the Department of Community Medicine, University of Jaffna coordinated & supervised the survey teams and estimated the haemoglobin levels in the blood.

- Ms. J Joseph, Public Health Nurse attached to the Department of Community Medicine, University of Jaffna supervised the survey and anthropometric measurements.
- 620 mothers, women and children participated in the survey, gave their time graciously and allowed the taking of blood samples.
- Funds for the survey was provided by the World Food Programme.
- The success of the survey is the result of all their collective effort.

Dr. N Sivarajah
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Faculty of Medicine, University of Jaffna
Jaffna
15.04.2001

Contents

1. Executive Summary

The Jaffna district has a population of 502,000. At the moment 42.2% of them are internally displaced. However, 89 % of the population of Jaffna has experienced displacement at least once, since 1987.

Most of the displaced population is living with friends and relations or in rented out annexes or makeshift buildings. 19,507 persons are living in welfare centres monitored by the Government Agent Jaffna.

This study was carried out to ascertain the extent of malnutrition among children under 5 years, pregnant and lactating mothers and adolescent girls living in these welfare centres.

The under - mentioned sample from the welfare centres was interviewed and anthropometric.

Children 0 - 59 months	442
Pregnant mothers	59
Lactating mothers	55
Adolescent girls	64

22.6 % of the children were wasted and 36.2 % were stunted (Table 4.2). 47.7 % of the children had a weight for age less than the minimum expected (Table 4.3).

6.1 % of the children were severely wasted and 7.0 % of the children were severely stunted.

15.3 % of the pregnant mothers in the welfare centres are under 20 years. Teenage marriages have become a common feature in the welfare centres. Except one all these girls are married. Most of these young girls have got married after they had become pregnant. In most cases the husbands are also teenagers, unprepared for marriage.

Anaemia is a major problem among pregnant women in welfare centres. 61 % of the pregnant women are anaemic. 3.4 % of pregnant women are severely anaemic. All these pregnant mothers and most of the moderately anaemic ones will need intensive care in a hospital to prevent maternal complication and death.

In spite of a large number of the mothers being anaemic, 27.1 % of the mothers have not received any haematinics, usually issued at Antenatal clinics to all pregnant mothers.

60.0 % of the lactating mothers are anaemic. Although 60 % of the lactating mothers are anaemic, over 90% of them do not receive any haematinics.

Six (9.4 %) of the adolescent girls (15 - 19 years old) were married. Four of them had one child each, and another was pregnant. The married girls were 16 to 18 years old and their husbands were 18 to 24 years old. All the husbands gave their occupation as laborers.

56.2 % of the adolescent girls were anaemic. Half of them were moderately or severely anaemic.

The following recommendations are made:

- All preschool and school children should be provided with "High energy biscuits" for a period of three years.
- All preschool and school children should be given 100,000 units of Vitamin A (Retinol) in January and June every year for three years.
- Therapeutic feeding centres should be established.
- Provision of sufficient quantities of haematinics (tablets containing, iron, multivitamins & calcium) to all Antenatal clinics in the Jaffna District.
- Hook worm treatment and distribution of haematinics at welfare centres.

- Providing hook worm treatment and biweekly treatment with iron folate tablets to all girls in schools.
- Conducting clinics for adolescent females at least once a month, in order to catch school dropouts, identify anaemia and treat them.
- Regular supply and distribution of Thriposha should be ensured.
- Intensive nutrition education should be conducted through newspapers, radio, local TV, etc.

2. Introduction

The nutritional status of children and pregnant women has been reported to be deteriorating in the war-torn areas - especially among the displaced populations. The Health and Demographic surveys of 1987 and 1993 give the Nutritional status of the children of Sri Lanka but do not reflect the status of the children of Jaffna as these surveys excluded the Northeastern province.

According to the nutrition survey carried out by the Sri Lanka nutrition status survey of 1975/76, 3.7 % of the children under 36 months of age were acutely undernourished (Department of Census & Statistics -1977). Among the 24 districts in Sri Lanka, Jaffna district had the lowest prevalence of acute undernutrition. A survey carried out in 1993 among the children in the Jaffna District (Sivarajah N , 1993) showed that the percentage of acutely undernourished in Jaffna district had increased to 18.9 %.

A nutrition survey carried out by an MSF team [David Becker & Michelle Kelly, (August 2000)] showed that among internally displaced children 06 - 59 months old, living in refugee camps in the Jaffna District, 18.9 % were acutely malnourished (wasted). Breakdown by age revealed that among the children 6 - 17 months old, 30.7% were wasted.

Since there is a lack of information on the nutritional status of children and women in conflict areas, on which rehabilitation activities could be based, a survey was proposed by World Food Programme (WFP).

Objectives

The general objective was to identify the percentage of undernourished children, pregnant and lactating mothers and adolescent girls in the welfare centers within the conflict areas.

The specific objectives are:

1. To identify the extent of
    - Anaemia in pregnant and lactating women.
    - Acute and chronic Protein Energy Malnutrition (PEM) among children under 5 years.
    - Anaemia, wasting and stunting among adolescent non-pregnant girls.

2. To identify the relationship between undernutrition and the following variables.
    - Age and sex in children under 5 years.
    - Previous and present occupation of parents, or husband.
    - Period of displacement.
    - Loss [or missing] parent in children under 5 years.
    - Loss [or missing] husband among pregnant and lactating women.
    - Attendance at antenatal and child welfare clinics.
    - Receipt and use of haematinics and food supplements at clinics.
    - Age appropriate immunization of children.
    - Availability and maintenance of growth monitoring charts.

Displacement of population in Jaffna District

The population of Jaffna has been subjected to several displacements.

In May-July 1987, the people of Vadamarachchi were displaced following the "Operation Liberation."

Subsequently, in October-December 1987, following the "IPKF operation", the people of Valigamam, were displaced.

In June-December 1995, following the operation named "Sunshine", the people of Jaffna town, parts of Valigamam were displaced to Thenmarachchi and Vadamarachchi.

In May-December 2000, the people of Thenmarachchi were displaced to Valigamam & Vadamarachchi.

On the whole, a vast majority of the people of Jaffna has been displaced during the past 13 years.

The reports of the Government Agent, Jaffna classifies the present population as follows:

Internally displaced	202,000	40.2%
Resettled	245,000	48.8%
Not displaced	55,000	11.0%
Total Population	502,000	100%

It is evident that 89 % of the population of Jaffna has been displaced at least once since 1987. Hence the effects of displacement would have been felt by almost the entire population of Jaffna.

3. Methodology

Data regarding the number of welfare centers in the Jaffna District, and the number of persons in each of these welfare centers keep changing frequently. Data on the number of welfare centers and the number of persons in these welfare centers were obtained by writing to the respective Divisional Secretaries. The data collected is given in table 3.1.

Table 3.1: Particulars of welfare centers by Divisions in Jaffna District

	Division	Number of welfare centers	Population
1	Delf	None	
2	Island North (Velanai)	None	
3	Island South (Kayts)	None	
4	Jaffna	None	
5	Nallur	08	0520
6	Valikamam - South West (Sandilipay)	42	5795
7	Valikamam -West (Chankanai)	29	2529
8	Valikamam-South (Uduvil)	14	1903
9	Valikamam - North (Tellippalai).	12	0995
10	Valikamam - East (Kopay)	12	0978
11	Thenmarachchi- (Chavakachcheri)	None	
12	Vadamarachchi South West (Karaveddy)	12	1645
13	Vadamarachchi-North (Pt. Pedro)	30	5142
14	Vadamarachchi-East (Maruthankerny).	None	
15	Pallai	None	
	Total	154	19507

Source: Divisional Secretaries in Jaffna District

Sampling

A sample consisting of the following was obtained.

50 Pregnant mothers

50 lactating mothers (with infants under 6 months)

50 adolescent girls (15 - 19 years)

400 children under 5 years.

The sampling was carried out in two stages

First stage

1. The sampling unit was the welfare centers
2. All welfare centers were listed out by divisions
3. Welfare centers were randomly selected and ranked in order of selection [annex 1]

Second stage

The number of mothers, adolescent girls and children to be included in the survey from each division, was determined on the basis of sample in proportion to population of that division as shown in Table 3.2.

Table 3.2: Sampling of Population in Welfare centers in Jaffna District

Division (1)	Population (2)	Sample size			Welfare centers		
		Pregnant (3)	Lactating (4)	Adolescent (5)	<5 yrs (6)	number (7)	Sample size (8)
Nallur	520	1	1	1	8	8	3
Sandilipay	5795	14	14	14	112	42	14
Chankanai	2529	7	7	7	56	29	9
Uduvil	1903	5	5	5	40	14	4
Tellippalai	995	3	3	3	24	7	2
Kopay	978	3	3	3	24	12	4
Karaveddy	1645	4	4	4	32	12	4
Pt. Pedro	5142	13	13	13	104	30	10
Total	19507	50	50	50	400	154	50

The required sample [of children under 5 years, pregnant mothers, lactating mothers & adolescent girls] was selected from the sampled welfare centers, in the order of random selection. Since it was not possible to interview and measure only part of the selected population in the welfare centres visited, all pregnant mothers, lactating mothers, adolescent girls & children in the last welfare centre were examined.

Hence the following numbers were finally included in the survey and subsequent analysis

Children 0 - 59 months	442
Pregnant mothers	59
Lactating mothers	55
Adolescent girls	64

Trained interviewers (third and fourth year medical students) visited each of the sampled welfare centers, and collected the names of pregnant & lactating women, adolescent girls (15 - 19 years old) and children under five years. The names were collected until the required sample size was obtained.

Subsequently, the team of trained interviewers, laboratory technician and a Public Health Nurse, visited the welfare centers and collected the data.

The trained interviewers conducted the interviews and weighing. They were checked by the supervisors (Public Health Nurse and Technician). The haemoglobin estimation was done, by the technician using a Blood Haemoglobin Photometer (HaemoCue Manufactured by HaemoCue AB, Box 1204, SE-262 23, Angelholm, Sweden).

4. Children under 5 years

Four hundred and forty two children 0 - 59 months, were interviewed and anthropometric measurements taken.

Age & Sex distribution

216 (48.9%) were boys and 226 (51.1%) were girls.

Table: 4.1.Age & sex distribution of children 0-59 months

Age (in months)	Male		Female		Total	
	Number	%	Number	%	Number	%
Under 12	45	20.8	44	19.5	89	20.1
12-23	50	23.1	55	24.3	105	23.8
24-35	44	20.4	43	19.0	87	19.7
36-47	47	21.8	38	16.8	85	19.2
48-59	30	13.9	46	20.4	76	17.2
Total	216	100.0	226	100.0	442	100.0

Prevalence of Undernutrition

A reliable and quick method of assessing the nutritional status of children is by anthropometric measurements. In this study, the weight and height of children were measured and related to their age.

Table 4.2. Prevalence of wasting (Weight for Height) and stunting (height for age)					
Nutritional status	Degree of nutrition	Wasting		Stunting	
		Number	%	Number	%
Well nourished	Above median	56	12.7	54	12.2
Satisfactorily nourished	Median - < - 2 SD	286	64.7	228	51.6
Undernourished	- 2SD to < - 3 SD	73	16.5	129	29.2
Severely undernourished	- 3SD to < - 4 SD	22	5.0	23	5.2
Very severely undernourished	- 4SD and below	05	1.1	08	1.8
Total		442	100.0	442	100.0

Table: 4.3. Prevalence of Undernutrition as per weight for age			
Nutritional status	Degree of Nutrition	Weight for age	
		Number	%
Well nourished	Above median	31	7.0
Satisfactorily nourished	Median - < - 2 SD	200	45.2
Undernourished	- 2SD to < - 3 SD	169	38.2
Severely undernourished	- 3SD to < - 4 SD	33	7.5
Very severely undernourished	- 4SD and below	9	2.0
Total		442	99.9

22.6 % of the children were wasted and 36.2 % were stunted (Table 4.2). 47.7 % of the children had a weight for age less than the minimum expected (Table 4.3).

6.1 % of the children were severely wasted and 7.0 % of the children were severely stunted.

Place of Birth of the children

A majority of the children (86.8%) were born at the Government hospitals (Table 4.4). However a sizable number (12.7%) were born outside a hospital (at home and the welfare centres). Most of these mothers who delivered in welfare centres and at home, were not attended to, by any trained person at the time of delivery.

Table: 4.4. Place of birth of Children		
Place of Birth	Number	%
Govt. Hospital	384	86.8
Welfare Centre	18	4.1
Home	38	8.6
Nursing home	02	0.5
Total	442	100.0

Parents of the Children

6.1% of the children did not have their father living with them. Most of the fathers were separated from their mothers. (Table: 4.5)

Table: 4.5. Present status of parents				
Status	Father		Mother	
	Number	%	Number	%
Alive in Welfare Centre	415	93.9	442	100.0
Dead	6	1.4		
Missing	1	0.2		
Separated	20	4.5		
Total	442	100	442	100.0

The distribution of the age of the parents is given in table: 4. 6.

0.5% of the fathers and 3.4% of the mothers of the children were under 20 years.

Table: 4.6. Distribution of parents of children by age				
Age (in years)	Father		Mother	
	Number	%	Number	%
<20	2	0.5	15	3.4
20-29	158	35.7	205	46.4
30-39	202	45.7	190	43.0
40-49	67	15.2	30	6.8
50-59	8	1.8	1	0.2
>60	2	0.5	1	0.2
Not Known	3	0.7	Nil	-
Total	442	100.1	442	100.0

Period of displacement

A majority of the population of Jaffna had been displaced at one time or other. According to the data from the GA Jaffna, only 11% of the population has remained not displaced. The duration of stay of the children in the present Welfare Centre is given in Table:4.7. A majority of those in the welfare centres are those displaced following the recent military operation in May 2000.

Table: 4.7. Duration of stay in the present Welfare Centre		
Period of Displacement (in months)	Number	%
<6	231	52.3
6-11	100	22.6
12-23	36	8.1
24-35	31	7.0
36-47	22	5.0
48-59	16	3.6
Not known	6	1.4
Total	442	100.0

The total period of displacement of the families (especially the mother of the children), is given in table 4.8. Most of them have been displaced several times.

30.3 % of the families, living within the welfare centres, have been displaced for five years or more. 65.7 % of the families have been displaced for less than one year. These are people from Thenmarachchi who have been displaced during the recent military operation in May 2000.

Table: 4.8. Total period of displacement of mother

Period of Displacement (in months)	Number	%
<6	26	6.2
6-11	251	59.5
12-23	11	2.6
24-35	3	0.7
36-47	1	0.2
48-59	2	0.5
60 and above	128	30.3
Total	442	100.0

Availability of services

Child Welfare clinics were available for the displaced population, within 2 - 4 km. from their welfare centres. 41.9 % of the children had a child welfare clinic within 1 km. from their welfare centres.

The mothers of 89.6 % of the children, indicated that they had their child Health Development cards with them (Table 4.9). Most of them had carried their child health development cards with them when they were displaced. This is a good indication of their attitude towards the care of their children.

Table: 4.9. Availability of Child Health development card		
Availability	Number	%
Available	396	89.6
Not available	46	10.4
Total	442	100.0

Age appropriate immunization of the children is given in table 4.10. 80.8 % of the children had received age appropriate immunization. But only 17.2 % of the entries could be checked from the child health development card. Most of the mothers did not have the card in their possession at the time of the interview. In some instances although the mothers said that they had given age appropriate immunization, there was no entry in the card. These were all included under the category 'age appropriate immunization given'

Table: 4.10. Age appropriate immunization of children		
Percentage achieved	Number	%
Never immunized	3	0.7
100%	357	80.8
75-99%	38	6.6
50-74%	27	6.1
25-49%	6	1.4
<25 %	Nil	0.0
Not applicable	7	1.6
Not known	4	0.9
Total	442	100.1

5. Pregnant mothers

Fifty nine pregnant mothers were interviewed. The age distribution of the pregnant mothers and their husbands is given in table 5.1. 15.3 % of the mothers in the welfare centres are under 20 years. Teenage marriages have become a common feature in the welfare centres. One contributing factor is the overcrowding and increased opportunities for young people to meet each other and ending in a pregnancy. Most of these young girls have got married after they had become pregnant. In most cases the husbands are also teenagers, unprepared for marriage.

Table: 5.1. Age distribution of pregnant mothers and their husbands

Age (in years)	Pregnant mother		Husband	
	Number	%	Number	%
Under 20	09	15.3	02	3.4
20-29	33	55.9	33	55.9
30-39	16	27.1	20	33.9
40-49	01	1.7	04	6.8
Total	59	100.0	59	100.0

Even parents of young girls are keen to get their daughters married early in life due to the uncertainty.

Most of these teenage girls who had been married, had been school dropouts following displacement.

The period of pregnancy of the mothers interviewed is given in table 5.2. The number for the under 12 weeks group is low, as attempts were not made to assess the pregnancy status of all cases of delayed periods.

The husbands of all except one mother were living in the welfare centre. One mother had lost her husband recently. There was no pregnancy among unmarried women.

Table : 5.2. Pregnant mothers by period of pregnancy		
Period of Amennorrhoea	Number	%
< 12 weeks	03	5.0
12-27 weeks	27	45.8
28 weeks & over	25	42.4
Not known	04	6.8
Total	59	100.0

Family income

The income of the families of pregnant mothers from an occupation, is given in table 5.3. A majority had an income of less than Rs: 1500.00. The income did not include the cost of dry rations received.

The income was based on the declaration made by the pregnant mother. No attempt was made to confirm their declarations.

Table: 5.3. Family income of pregnant mothers		
Family income (in Rupees per month)	Number	%
None	06	10.2
<500	09	15.3
500-999	17	28.8
1000-1499	14	23.7
1500-1999	05	8.5
2000+	08	13.5
Total	59	100.0

Displacement

The period of stay in the welfare centre is given in table 5.4. 69.5% of the mothers have lived in the present welfare for under 12 months. Most of them were displaced in May 2000.

Table: 5.4. Duration of stay in present Welfare Centre		
Duration (in months)	Number	%
<6	24	40.7
6-11	17	28.8
12-23	Nil	0.0
24-35	Nil	0.0
36-47	01	1.7
48-59	08	13.6
60 and over	09	15.2
Total	59	100.0

Pregnancy & Children

Women by number of pregnancies is given in table 5.5

Table : 5.5. Women by number of pregnancies		
Pregnancies	Number	%
1	12	20.3
2	16	27.1
3	09	15.2
4	07	11.9
5	07	11.9
6	08	13.6
Total	59	100.0

The number of children of the pregnant women interviewed is given in table 5.6. Nearly two thirds of the pregnant women already have more than two children. Regular family planning services do not reach these centres. The supply of contraceptives to Jaffna is irregular. Contraceptive users have had to change their contraceptive methods frequently with availability of different methods at different periods

Table : 5.6. Pregnant women by number of children		
Children	Number	%
none	10	17.0
1	17	28.8
2	13	22.0
3	06	10.2
4	07	11.9
5	04	6.8
6	01	1.7
7	01	1.7
Total	59	100.0

Utilization of Services

67.8 of the pregnant women interviewed said that there was an Antenatal Clinic within 1km from the Welfare Centre. However 10.2% of the women had never attended a clinic. Only less than two thirds of the women had over 50% attendance. This is a serious lapse and should be corrected. Lack of sufficient Family Health workers in these areas is a serious handicap

Table : 5.7. Clinic visits by pregnant women		
Visits as a% of expected	Number	%
100%	15	25.4
75-99%	06	10.2
50-74%	13	22.0
25-49%	06	10.2
<25%	01	1.7
Never visited	06	10.2
Not known	12	20.3
Total	59	100.0

Anthropmetric measurements

Measurement of height of pregnant women showed that the height of 5.1 % of the pregnant women was under 145 cms.

Table: 5.8. Distribution of height of pregnant women		
Height (in cms)	Number	%
<145	03	5.1
145-149	11	18.6
150-154	24	40.7
155-159	11	18.6
160-164	07	11.9
165-169	03	5.1
170+	Nil	Nil
Total	59	100.0

Anaemia

Anaemia is a major problem among pregnant women in welfare centres. 61 % of the pregnant women are anaemic. 3.4 % of pregnant women are severely anaemic. All these pregnant mothers and most of the moderately anaemic ones will need intensive care in a hospital to prevent maternal complication and death.

Table: 5.9. Prevalence of Anaemia among pregnant women		
Degree of anaemia (Haemoglobin in g/litre)	Number	%
Not anaemic (=or>110)	23	39.0
Mild anaemia (100-109)	17	28.8
Moderate anaemia (70-99)	17	28.8
Severe anaemia (<70)	02	3.4
Total	59	100.0

Issue of Haematinics

In spite of a large number of the mothers being anaemic, 27.1% of the mothers have not received any haematinics, usually issued at Antenatal clinics to all pregnant mothers.

Only 1.7% of the mothers have received 90 tablets of iron to be taken at the rate of 1 tablet three times a day.

Table: 5.10. Issue of haematinics to pregnant mothers at last clinic attended

Number of tablets issued	Iron		Vitamins		Calcium	
	No	%	No	%	No	%
None	16	27.1	16	27.1	18	30.5
Less than 30	03	5.1	03	5.1	03	5.1
30	35	59.3	35	59.3	33	55.9
60	02	3.4	02	3.4	01	1.7
90	01	1.7	01	1.7	01	1.7
Not known	02	3.4	02	3.4	03	5.1
Total	59	100.0	59	100.0	59	100.0

Nutritional supplements

Thriposha is a nutritional supplement issued by the state at all clinics in Sri Lanka, to all pregnant and lactating mothers and undernourished children. The supply to Jaffna district is in short supply and also irregular. A consignment was received just before the survey started and hence 49.1 % had a supply of two packets. In fact ideally they should have received 6 packets for the previous three months. In spite of the arrival of stocks of Thriposha, 37.3 % of the mothers did not receive any Thriposha.

Table: 5.11. Issue of Thriposha (Nutritional Supplements) for the past 3 months		
Number of packets issued	No of Pregnant mothers	%
None	22	37.3
1	02	3.4
2	29	49.1
3	Nil	0.0
4	05	8.5
More than 4	Nil	0.0
Not known	01	1.7
Total	59	100.0

6. Lactating Mothers

These are mothers with children under seven months. The distribution of mothers by age of their children is given in table 6.1.

Table: 6.1. Distribution of lactating mothers by age of infants		
Age of infant (in months)	Number	%
Under one month	06	10.9
1-2 months	17	30.9
3-4 months	25	45.5
5-6 months	07	12.7
Total	55	100.0

Age distribution

47.3 % of the husbands and 40 % of the lactating mothers are in the 30 - 39 years age group (Table 6.2)

The husbands of 54 of the 55 lactating mothers are living in the welfare centres. One lactating mother is an unmarried 14 years old single mother.

Table 6.2. Distribution of lactating mothers and their husbands by age				
Age (in years)	Husband		Mother	
	Number	%	Number	%
<20	Nil	0.0	01	1.8
20-29	11	20.0	20	36.4
30-39	26	47.3	22	40.0
40-49	13	23.6	11	20.0
50-59	04	7.3	01	1.8
Not known	01	1.8	Nil	0.0
Total	55	100.0	55	100.0

Displacement

Duration of stay in the present welfare centre and total period of displacement is given in Table: 6.3

Table: 6.3. Distribution of lactating mothers by stay in present welfare centre and total period of displacement

Duration of stay (in months)	In present welfare centre		Total period of displacement	
	Number	%	Number	%
Under 12	34	61.8	32	58.2
12-23	01	1.8	01	1.8
24-35	01	1.8	Nil	0.0
36-47	02	3.6	Nil	0.0
48-59	09	16.4	Nil	0.0
60+	08	14.5	21	38.2
Not known	Nil	0.0	01	1.8
Total	55	99.9	55	100.0

Infant feeding practice

Out of the 55 lactating mothers, 63.6 % were giving only breast milk to their infants. Only one mother gave bottle-feeding to her infant. (Table 6.4)

Table 6.4. Infant feeding of last child

Milk food given	Number	%
Breast feeding only	35	63.6
Breast & bottle feeding	19	34.5
Bottle feeding only	01	1.8
Total	55	99.9

Anaemia

The measurement of haemoglobin levels was carried out using the haemocue. The haemoglobin level is given in table 6.5. One of the women in the moderately anaemic group was a week after

a transfusion of 2 pints of blood. She had a retained placenta following a home delivery.

60.0 % of the lactating mothers are anaemic. 45.4 % of the lactating mothers are suffering from moderate to severe anaemia. The mild ones are liable to become moderately or severely anaemic with the next pregnancy. The most anaemic woman had a haemoglobin of 690 g/litre.

Table: 6.5. Prevalence of Anaemia among lactating mothers

Degree of anaemia (Haemoglobin in g/litre)	Number	%
Not anaemic (= or > 120)	22	40.1
Mild anaemia (110-119)	08	14.6
Moderate anaemia (80-109)	23	41.8
Severe anaemia (<80)	02	3.6
Total	55	100.0

Mild anaemia is really a misnomer. The mildly anaemic women have already depleted their iron reserves

Availability of Services

63.6% of the lactating mothers had access to a welfare centre within 1 km from their welfare centre. But postpartum visits to clinics by lactating mothers, as a routine are rare. They only visit the clinic for the first DPT/Polio vaccine to the child or if Thriposha is being distributed.

Table: 6.6. Issue of Thriposha packets during the past 3 months		
Packets of Thriposha	Number of lactating mothers	%
None	17	30.9
1	07	12.7
2	29	52.7
3	Nil	0.0
4	01	1.8
>4	Nil	0.0
Not Known	01	1.8
Total	55	99.9

The amount of Thriposha issued to the lactating mothers for the previous three months is given in table. 6.6. Mothers should have received 6 packets for the previous three months. However none received more than 4 packets of Thriposha and 30.9% did not receive at all.

Haematinics

Although 60 % of the lactating mothers are anaemic, over 90 % of them do not receive any haematinics.

Table: 6.7. Issue of haematinics to lactating mothers at last clinic attended						
Number of tablets issued	Iron		Vitamins		Calcium	
	No	%	No	%	No	%
None	51	92.7	50	90.9	52	94.5
Less than 30	Nil	0.0	Nil	0.0	Nil	0.0
30	04	7.3	05	9.1	03	5.5
Total	55	100.0	55	100.0	55	100.0

7. Adolescent Girls

Age distribution

64 adolescent girls were interviewed. The age distribution of the girls is given in table 7.1.

Table: 7.1. Age distribution of adolescent girls interviewed		
Age (in years)	Number	%
15	15	23.4
16	16	25.0
17	12	18.8
18	19	29.7
19	02	3.1
Total	64	100.0

Marital status

The marital status of the adolescent girls is given in table 7.2.

Six (9.4 %) of the adolescent girls were married. Four of them had one child each and another was pregnant. The married girls were 16 to 18 years old and their husbands were 18 to 24 years old. All the husbands gave their occupation as laborers.

Table: 7.2. Marital status of adolescent girls interviewed		
Marital status	Number	%
Single	57	89.0
Married	06	9.4
Not recorded	01	1.6
Total	64	100.0

Displacement

87.5 % of the adolescent girls have been living in the present welfare centre for less than one year. 12.5 % have been in the present welfare centre for over 4 years. (Tables 7.3 & 7.4).

Table: 7.3. Total period of displacement		
Total duration of displacement (in months)	Number	%
<6	02	3.1
6-11	45	70.3
12-23	07	10.9
24-35	Nil	0.0
36-47	Nil	0.0
48-59	Nil	0.0
60+	10	15.7
Total	64	100.0

Table: 7.4. Duration of stay in present Welfare centre		
Duration of stay (in months)	Number	%
<6	26	40.6
6-11	30	46.9
12-23	Nil	Nil
24-35	Nil	Nil
36-47	Nil	Nil
48-59	02	3.1
60+	06	9.4
Total	64	100.0

School dropouts

Out of the 64 adolescent girls interviewed, 45.3 % do not attend school. The duration for which they did not attend school is

given in table 7.5. The school dropouts include the 6 adolescent girls who are married.

21 out of the 29 dropouts (72,4%) have been out of school for over 1 year.

Table: 7.5. School dropouts

Age	Total Number	Non - Attendence %	Period of dropout	
			<1 year	>1 year
15	15	4 [27%]	4	0
16	16	4 [25%]	1	3
17	12	6 [50%]	1	5
18	19	13 [68%]	2	11
19	2	2 [100%]	0	2
Total	64	29 [45%]	8	21

Anaemia

Anaemia among adolescent girls was estimated using the haemocue. The percentage of girls with anaemia is given in table 7.6.

56.2 % of the adolescent girls were anaemic. 26.5% of them were moderately or severely anaemic.

Table: 7.6. Prevalence of Anaemia among adolescent girls

Degree of anaemia (Haemoglobin in g/litre)	Number	%
Not anaemic (= or > 120)	28	43.8
Mild anaemia (110-119)	19	29.7
Moderate anaemia (80-109)	13	20.3
Severe anaemia (<80)	04	6.2
Total	64	100.0

The extent of undernutrition was estimated using the Body mass index. The body mass index (BMI) was calculated using the formula

BMI = (Weight in Kg)/ Height in metres)^2

The BMI was compared with a standard table and the nutritional level was assessed. 15.6% of the girls were undernourished (Table 7.7)

Table: 7.7. Prevalence of undernutrition among adolescent girls

Degree of nutrition	Number	%
Undernourished	10	15.6
Average	53	82.8
Overweight	01	1.6
Obese	Nil	0.0
Total	64	100.0

8. Recommendations

1. Wasting and stunting among children is high. Intensive supplementary feeding programmes should be commenced. According to accepted criteria in major emergencies (WHO, 2000), when the percentage of undernutrition is more than 15% in a community, it warrants implementation of selective feeding programmes. Supplementary and therapeutic feeding programmes should be commenced in order to prevent a severe calamity.
    - All preschool and school children should be provided with "High energy biscuits" for a period of three years. According to WHO (WHO, 2000) these biscuits should contain a minimum of 400 Kcal energy and 12g. of proteins per 100 g. They should be fortified with vitamins and minerals.
    - In addition, all preschool and school children should be given 100,000 units of Vitamin A (Retinol) in January and June every year for three years.
    - Therapeutic feeding centres should be commenced. Initially one should be commenced within 2-3 kilometres from the Jaffna Teaching hospital, so that, it could be supervised by the paediatric unit.
2. Anaemia among women in the reproductive age is a major problem in the welfare centres. This leads to undernutrition among children born to these mothers and increased maternal and infant mortality. Anaemia among women in the reproductive age group is not peculiar to the welfare centres only. It is a common feature in the entire peninsula. Haematinics should be freely available to all women in the reproductive age group. This could be achieved

- By providing sufficient quantities of haematinics (tablets containing, iron, multivitamins & calcium) to all Antenatal clinics in the Jaffna District.
- De-worming and distributing haematinics at welfare centres through the Family Health Workers of the area.
- Providing deworming and biweekly treatment with iron folate tablets to all girls in schools.
- Conducting clinics for adolescent females at least once a month, in order to catch school dropouts, identify anaemia and treat them.

3. Regular supply and distribution of Thriposha should be ensured. Since transport has been a major constraint, local manufacture of Thriposha (or an equivalent) should be commenced in Jaffna immediately.

4. Concurrently, intensive nutrition education should be conducted through newspapers, radio, local TV, etc

   Video Cassette lending shops are in plenty in Jaffna and they are well patronized. Video strips, of 1-3 minutes duration on nutrition and health related matters could be inserted at the beginning end or in between a video film.

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Annex 1

Welfare Centres in Jaffna District - in order of random selection in each Division

[Data collected from Divisional Secretaries in November/December 2000]

Division	G.N. No.	Name of Welfare centre	Families	Population	Randomly selected order
Delft					
Island North (Velanai)		None			
Island South (Kayts)					
Jaffna		None			
Nallur					
	099	Lotus Road W C	31	141	1
	125	Arulmani W C	27	118	2
	114	Kalasalai Milk Board W C	07	23	3
	100	Kalatty M M T M School W C	12	44	4
	121	Humedica Welfare Centre	07	26	5
	128	Humedica Welfare Centre	21	79	6
	098	Humedica Welfare Centre	27	57	7
	119	R C T M School W C	07	32	8

Valikamam- South West (Sandilipay)					
	132	A M T M School	22	95	1
	140	Kaddudai	110	392	2
	140	Kalankamam	20	92	3
	140	Thoranthottam	29	127	4
	140	Kaddudai II	23	92	5
	131	Authkuli II	16	71	6
	140	Kaddudai III	23	86	7
	137	Vinayagar camp	12	51	8
	131	Chavakaddu I	23	86	9
	131	Thevan Camp	32	102	10
	138	Karuniyam	11	46	11
	133	Mulli I	71	279	12
	131	Athukuli	62	307	13
	138	TC Lane	26	95	14
	139	Lawton	16	84	15
	134	Adikari II	26	91	16
	131	Antony	24	99	17
	132	OLR	180	748	18
	131	Chavakaddu II	21	106	19
	131	Chaddy	24	207	20
	130	Suthumalai South	10	40	21
	138	Thiyakar camp	38	118	22
	139	Sellamuthu	39	165	23
	130	Mawaththai	10	40	24
	140	Hallock	50	190	25
	138	T C Lane	31	94	26
	136	Navali South	57	231	27
	137	Rose Brand	28	112	28
	134	Neelakandan	15	62	29
	138	Chathawathai	55	217	30
	130	Simayabarathy	23	101	31
	134	Rasapallavan	26	91	32

	129	Chathawathai	17	52	33
	129	American GTMS	20	40	34
	134	Pulavar camp	75	264	35
	134	Adikari I	25	98	36
	130	4th mile post	13	52	37
	132	Gunapalan AMTM School	22	95	38
	133	Mulli II	55	253	39
	134	Alagaratnam	28	86	40
	138	Memorial	26	58	41
	140	Pippily	26	80	42
Valikamaam - West (Chankanai)					
		Odaikkarai camp I	25	97	1
		Thiruvilankam	17	90	2
		Sempaddan thoddam	35	159	3
		Pootharasi camp	06	29	4
		Periyapulo	49	132	5
		Kullippan camp	39	154	6
		Aikkiya Welfare centre	06	24	7
		Panaveddy	18	59	8
		Odaikarai camp II	11	35	9
		Old Post Office	03	14	10
		Kaddupulam	25	120	11
		Amaithi camp II	06	24	12
		Pothohar camp	09	25	13
		Odaikkarai III	04	19	14
		Amaithy	35	124	15
		Vairavakovilady	07	27	16
		Neethgimanram	06	19	17
		Sinnammah Vidyalayam	13	52	18

		Chettiyar madam	86	305	19
		Thoppu camp	07	27	20
		Sethupidichi	04	19	21
		Neethivan camp	66	228	22
		Nagendiramadam	25	90	23
		Chankanai South camp	02	09	24
		Kaladdy	09	39	25
		Kampanai	32	126	26
		Veram camp	42	184	27
		Salasiya camp	18	65	28
		Kappanda	55	234	29
Valikamam-South (Uduvil)					
	185	Ilanthaiady WC Stage I	31	134	1
	190	Railway station WC, Inuvil	19	63	2
	198	Chunnakam St.Anthony's Church	12	40	3
	184	Maddakachchi WC, Uduvil	08	36	4
	200	Kanderodai WC, Kanderodai	28	94	5
	196	Sabapathipillai WC, Chunnakam	149	590	6
	187	Anthiran WC, Sanguvely	27	102	7
	187	Sanguvely WC, Kanderodai	10	47	8
	196	Periyamathavady WC, Chunnakam	12	36	9
	185	Ilanthaiady WC Stage I	29	124	10
	199	Veerakathipillai WC, Kanderodai	34	143	11

	190	Mill WC, Inuvil	14	63	12
	185	Alady WC, Uduvil	21	65	13
	200	Skandavarodaya College WC, Kanderodai	101	366	14
Valikamam- North (Tellippalai)					
		Coir Industries	18	72	1
		Kuruvalai	79	280	2
		Neethivan Illam	78	282	3
		Sathanantha Vidyasalai	09	41	4
		Konatpulam	51	175	5
		Pannalai	39	134	6
		AMTM School	01	11	7
Valikamam- East (Kopay)					
	273	Kalaimathy CC	16	67	1
	272	Jeyasakthy CC-Siruppiddy East	10	31	2
	265	VTS Lane	10	35	3
	265	Yogaram	72	264	4
	265	Selvapuram	15	54	5
	265	Krishnankovilady	40	165	6
	286	Atchuvely Pillayar temple (Atchuvely South)	22	74	7
	265	Iluppaiday	21	92	8
	272	Gnanavairavar Kovil - Sirupiddy	3	5	9
	265	Kalaiarangu-Urumpirai South	27	85	10
	272	Kalai Oli CC	9	25	11
	266	Hindu College	19	81	12

Thenmarachchi-(Chavakachcheri)		None			
Vadamarachchi South West (Karaveddy)					
		Nelliyadi M M V	36	148	1
		Navalar Hindu TMS	23	115	2
		Karanavai Ponnampala Vidyalayam	45	97	3
		Gnanasuriyar College, Thunnalai	30	174	4
		Karaveddy Sri Naratha Vidyalayam	27	101	5
		Thunnalai GTMS	37	134	6
		Vathiry Thevarayalai Hindu College	54	236	7
		Karaveddy M M School	75	331	8
		Alvai North GTMS	13	68	9
		Maniyakaram thottam GTMS	15	54	10
		Udy.North Kalaivany RDS	16	59	11
		Sacred Heart College, Karaveddy	33	128	12
Vadamarachchi-North (Pt.Pedro)					
	406	Katkovalam WC	24	100	1
	417	UNHCR WC (Kodikkadu)	14	45	2
	394	Palavi WC	69	258	3
	417	UNHCR WC (OLPS)	24	130	4
	399	Viyaparimoolai	03	11	5
	403	St. Mary's WC	73	311	6

	408	GTMS Uruthravathai WC	20	111	7
	417	National Housing Scheme WC	12	39	8
	404	Luxman Thottam	14	81	9
	397	Alvai North West	24	91	10
	389	Sivaguru Vidyalayam I, VVT NE	114	404	11
	408	Puloly Cinema	15	69	12
	404	Thumpalai RDS	12	50	13
	395	Polikandy Bharathy WC	12	44	14
	390	Valvettithurai North East	115	450	15
	417	CARE WC (OLPS)	34	156	16
	398	Alvai North Centre	61	253	17
	389	Valvettithurai North center RDS	06	31	18
	396	Poomagal WC	30	132	19
	401	Point Pedro - Supparmadam	59	217	20
	413	Pallapai WC (Puloly East)	10	53	20
	394	Polykandy East	69	258	21
	394	Nilavan WC	13	61	22
	407	Assembly of God (Puloly North)	03	08	23
	416	Vallipuram WC	20	106	24
	396	Thikkam WC	12	44	25
	414	Sinngainagr WC (Puloly South)	47	198	27
	403	Munai (Pt.Pedro East)	74	296	28
	417	Private Houses (OLPS)	06	25	29

	417	CARE WC (Kodikkadu)	20	101	30
Vadamarachchi-East (Maruthankerny)		None			
Pallai		None			
Total					

Abbreviations:

AMTM	=	*American Mission Tamil Mixed*
CC	=	*Community Centre*
GN	=	*Grama Niladharai*
GTMS	=	*Government Tamil Mixed School*
MMV	=	*Madya Maha Vidyalayam*
RDS	=	*Rural Development Society*
TMS	=	*Tamil Mixed School*
WC	=	*Welfare Centre*
OLPS	=	*Our Lady of Perpetual Succour*

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