HEALTH STATUS OF INDIAN CHILDREN IN A RUBBER ESTATE IN NEGERI SEMBILAN (A CASE STUDY)

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S I N O P S I S

Projek ini adalah suatu tinjauan mengenai taraf kesihatan kanak-kanak di Ladang Pajam. Tujuan utama kajian ini adalah untuk memberi gambaran mendalam tentang kesihatan kanak-kanak di Sektor Ladang.

Penulisan projek ini bermula dengan perbincangan mengenai tujuan dan skop kajian, metadologi dan masalah masalah yang dihadapi sewaktu kajian dijalankan. Juga diberi ulasan ringkas tentang karya-karya awal yang membincang taraf kesihatan di Sektor Ladang.

Bab 2, menyatakan latar belakang sejarah Ladang Pajam, penempatan, beberapa aspek mengenai penduduk kawasan ini dan segala kemudahan yang disediakan bagi penduduk kawasan ini.

Taraf kesihatan dan taraf pemakanan kanak kanak gangguan kesihatan yang sering menimpa kanak-kanak ini dan jenis jenis rawatan yang digunakan responden dibincangkan dalam bab 3.

Selanjutnya bab 4, membicarakan beberapa faktor yang mempengaruhi kesihatan kanak-kanak. Ia merangkumi faktor-faktor seperti pemakanan, perumahan, sanitasi persekitaran dan faktor sosio-budaya.

Akhirnya, bab 5 memberikan kesimpulan kajian dan turut dikemukakan beberapa langkah untuk membaiki kesihatan di Landang Pajam.

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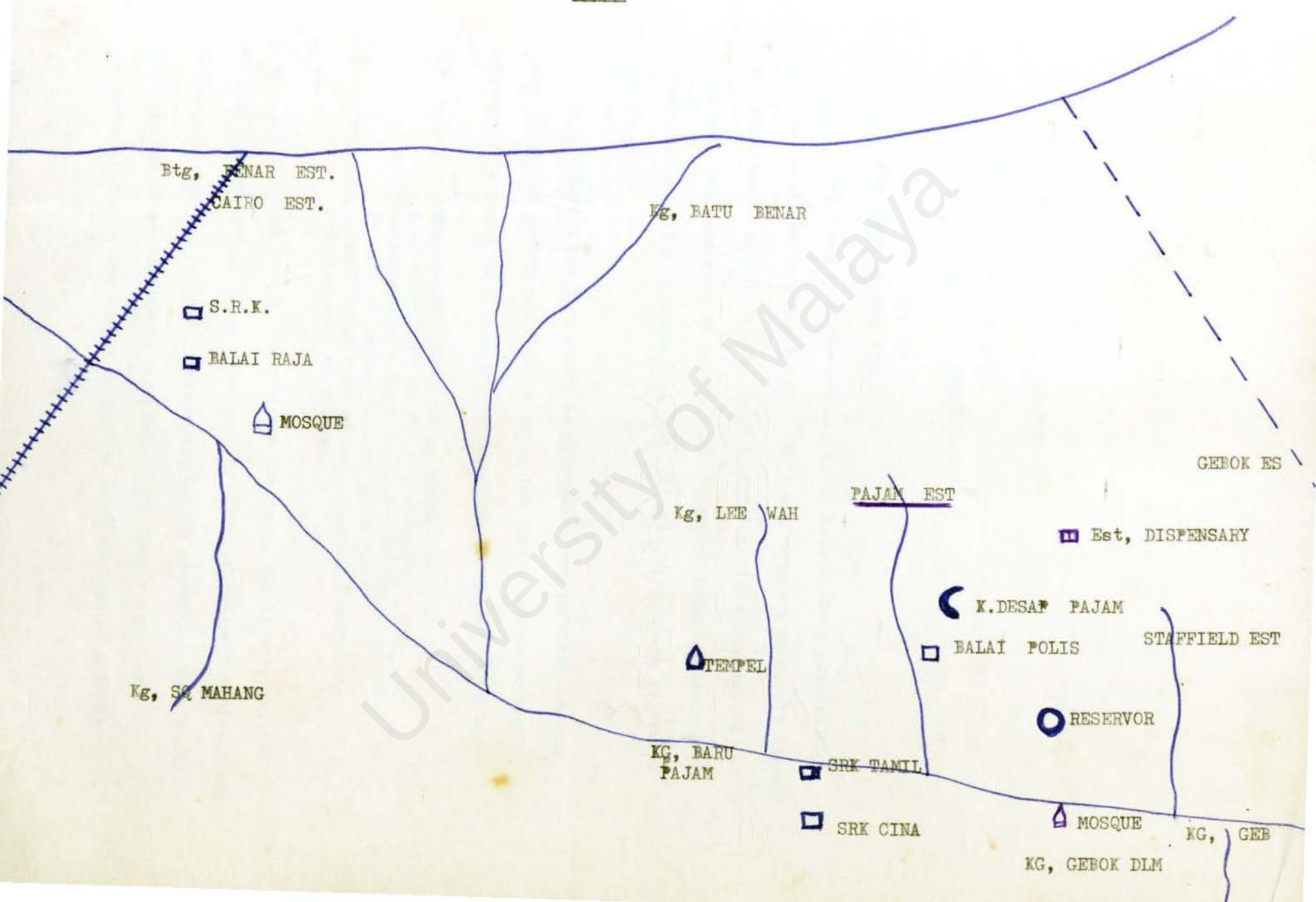

CHAPTER 1

INTRODUCTION

1.1 AIMS AND SCOPE OF THE STUDY

This study examines the status of health among plantation workers' children in Pajam Estate. Data was obtained primarily through the measurement of the weight, height, mid-arm circumference of children, the recording of nutritional intake of these children and interviewing of Indian workers on various aspects relating to health and disease.

Emphasis has been given to the social and cultural factors that relate to health and disease among the Indian estate workers, particularly among their children. According to Lynch (1969 : 82)

> Man is not only a social animal but also a cultural animal, it scarcely surprises us to be told that cultural as well as social factors often play a significant role in man's susceptibility and responses to illness.

Given that health, disease and treatment are closely related to such socio-cultural factors as income, diet, educational achievements, social environment, beliefs, customs and health education, this study will analyse these aspects in some detail and demonstrate how they are associated with the status of health among the Indian children.

This study will also describe disease treatments that estate workers seek for their sick children. It was observed that while some of them took their sick children to western-trained doctors, others sought treatment from traditional healers. A few even resorted to home treatment using medicine which were either purchased or self-gathered. It seems that cultural factors play an important role in determining the type of treatment that the estate workers choose.

A proper and detailed study on health and diseases of children in a community would require longitudinal study (at least one to two years) and systematic recording. Given the time constraints, the scope of this study is somewhat limited. It, nevertheless, attempts to cover as many factors as possible in order to demonstrate how these affect the health of several Pajam Estate children whose ages range from one month to fourteen years. In terms of disease it is only intended to explore physiological ailments and it thus ignores psychological disorders.

1.2 RESEARCH METHODOLOGY

I have stayed at Pajam Estate on several occasions before this research was carried out. Therefore I was familiar with this area, and the residents. The total population of the estate is 653 people residing in 56 households. I have selected 30 households, which constitutes more than 50 percent, as sample for the survey. Forty children were chosen randomly. Households with at least one child were selected for interviewing with structured schedules.

Informal interviews were carried out with the respondents as well as estate people who were not part of the study sample. These included shopkeepers, the creche attendant, the kindergarten teacher, the estate senior conductor, the estate hospital assistant, and the rural clinic nurse. I relied on the rural clinic nurse for information on children's health conditions, parents' attitudes and health facilities that are available in Pajam. The estate's senior conductor provided me with information about the estate management, the history of the estate and the amenities provided by the estate management.

With the assistance of the rural clinic nurse, I recorded the heights, weights and mid-arm circumference of all the children in the sample. The heights for infants were measured on a length board. For the older children, their heights were measured by a vertical height measure that is attached to weighing scale. All height measurements recorded to the nearest 0.1 cm. The weighing was done with the subject fully clothed but without any foot-wear. For weighing infants a spring scale was used. All weights were recorded to the nearest 0.1 kilogram. The pointer was checked for zero reading before weighing. Mid-arm circumference was measured with a non-stretchable tape and was read to the nearest 0.1 cm.

I stayed in the estate for about a month. Apart from the interviewing I also observed respondents. This method was used to record any relevant information which might not have been covered by the interviews. In particular, from my obsrevations I was able to obtain information on the peoples' lifestyles, feeding patterns and personal hygiene. The merit of using this method is well expressed

Some of the answers given by the plantation workers were those they felt was expected from them. It was noticed that it was the rare labourer who admitted that he could not understand the question or did not know the answers.

Apart from this, there was the problem of on-lookers, the presence of neighbours or friends during interviews. As there are two houses in each house-block with only low partitioning wall separating the porches of each of the two houses, the neighbours who are often very curious when the interviewer goes into one house, tend to participate in the interviews.

Finally time was a major constraint. Since the working hours for the estate labourers is from 6.30 am till 2.30 pm, they were only available for interview after 2.30 pm till 6 pm during weekdays and from 10 am till 6 pm on weekends.

1.4 REVIEW OF LITERATURE

There have been several studies done on the Malaysian plantation community but only a few have examined the health of plantation workers' children. Ramachandran (1970) found that malnutrition in the plantation was aggravated by worms infestation which was found in 70 percent to 90 percent of the children. He concluded that the two main causes of malnutrition are poverty and lack of education among the Indian estate workers. In a nutritional survey of 518 Indian estate dwellers, which form 46 percent of the total Indian estate population in Selangor, Kandiah and Lim (1977) discovered a high prevalence of anemia among pre-school children (47.4 percent) school children (47.2 percent)

CHAPTER 2

SETTING

2.1 : Pajam Estate

This study was carried out in Pajam Estate which is located in the district of Seremban, Negeri Sembilan. It is about 2 miles from Mantin Town and 14 miles away from Seremban, the capital of Negeri Sembilan. The estate was opened in 1928 by Sime Darby, a British Company and is presently owned by Sime Darby Holdings. Since the time of its formation till now only rubber is cultivated in this estate.

The current size of the estate is about 2450 acres consisting of two divisions, namely Pajam Home Division and Gebok Division. The Pajam Home Division and Gebok Division encompass about 1300 acres and 1150 acres respectively. This study was carried out in Pajam Home Division.

This area is very well serviced by a good metalled road and it is relatively close to the main trunk road. People in the estate travel mainly by foot, bicycles and motorcycles. The labour

lines* are also served by a network of foot paths which often turn soggy during the rainy season.

The only form of public transport is the bus. Bus services to Seremban are available at hourly intervals from 6.30 am till 6.15 pm. The only telephones here serve the police station and government clinic. A mobile postal service is available twice a week and two residential policemen provide a minimum of security.

The majority of the residents in Pajam estate are Indians who are descendants of migrants from India who came through the "kangany" system. Arasaratnam (1970) noted that, in the kangany system of labour recruitment, a trusted Indian labourer was sent by his employer to his place of origin to recruit more labourers. He was required to select suitable people from his home village or district to work for his employer. Travel and moving expenses of the new recruits were paid by the employer through his recruiter.

This area has a population of 653 people residing in 96 households. Of these 99 percent of them are Indians and the remainder are Chinese. All the families selected for this study are Indian Hindus.

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*In an estate a row of houses built by the owner for allotment to labourers free of rent is known as a "Labour line" in local English.

Table 2.2 below shows the population distribution according to ages.

Table 2.2 : Age-distribution of Pajam Estate Population

Age-group (years)	Number	%
Over 60	7	1
55 - 59	13	2
50 - 54	10	1.5
45 - 49	25	4
40 - 44	51	8
35 - 39	110	17
30 - 34	41	6.2
25 - 29	122	18.6
20 - 24	115	17.6
15 - 19	55	8.5
10 - 14	26	4
5 - 9	41	6.2
0 - 4	37	5.5
Total	653	100

The educational status of children's parents in the study population showed(see Table 2.3) that of the 30 men, 6 had no formal education, 20 had primary education and 4 had secondary education. Only one of the four men got as far as Form Three.

Table 2.3 : Educational status of fathers

Educational level	Number of fathers	%
Secondary education	4	13.3
Primary education	20	66.7
No formal education	6	20.0
Total	30	100

The educational status of the children's mothers in the study population showed that among 30 women, 8 had no formal education, 21 had primary education and one had secondary education. (see Table 2.4). The highest level of secondary education achieved by a mother is Form One.

Table 2.4 : Educational status of mothers

Educational level	Number of mothers	%
Secondary education	1	3.3
Primary education	21	70.0
No formal education	8	26.7
Total	30	100

Since a large number of residents had low educational achievement, they are mainly employed as rubber tappers, factory workers and field workers. Only a small number of them are employed as clerks, field conductors and drivers. Table 2.5 provides a breakdown of the occupation of Pajam estate residents.

Table 2.5 : The occupations of the residents

Occupation	Number of residents	%
Rubber Tapper	230	85.2
Factory worker	25	9.3
Field worker	7	2.7
Field conductor	3	1.1
Clerk	2	0.7
Driver	2	0.7
Hospital Assistant	1	0.3
Total	270	100

Rubber tappers form the largest group making up 85 percent of the workers. Factory workers are the next largest group with only 9 percent while the other occupational categories make up the remaining 5 percent of the residents. Some also work part time in closeby poultry farms while several engage in petty trading, commercial farming and animal rearing to supplement their incomes.

There is considerable income differentiation among the estate labourers (see Table 2.6). Monthly income of the labourers varies according to the type of work, skill of the worker and the number of working days. 68 percent receive an average monthly income of $200 - $300, while only 8 percent receive an average monthly income of $300 - $400.

Table 2.6 : Average monthly income of labourers

Average monthly income from estate work	Number of labourers	%
more than $400		
$300 - $400	4	8
$200 - $300	34	68
less than $200	12	24
Total	50	100

Table 2.7 shows the average monthly household income of the 30 households in the estate.

Table 2.9 : Property Ownership

Item	Number of Owner	% labourers
Radio	27	90
Motorcycle	24	80
Bicycle	21	70
Television	10	30
Video Player	2	7
Refrigerator	2	7

It can be seen from Table 2.9 that 80 percent of the labourers owned motorcycles and 70 percent owned bicycles. Regarding household luxuries, 90 percent owned radio and 2 owned refrigerators and video players. Refrigerators and video players are not popular items because the electricity supply to the labourers home is not continuous throughout the day.

All the labourers in Pajam estate are provided with houses built by the estate management. These houses are arranged in rows parallel to each other. There are basically three different types of houses built for the labourers. The first type is the semi-detached wooden house which has a hall, one bedroom, a kitchen and a bathroom but without a toilet. These were built when the estate first started in 1930's. The second type is the semi-detached brick house which consists of a hall, two bedrooms, a kitchen, a bathroom but without toilet facilities. The third type is a semi-detached brick house with a hall, three bedrooms, a kitchen, a bathroom and a toilet.

The employer provides a football field for recreation and screens two films in a year for entertainment.

The presence ofsundry shops, foodstalls, a furniture shop, a tailoring shop and a toddy shop within a small area give it the appearance of a township. The residents however do most of their main dealings in Mantin where there is a bank, post office, a mini-market, a fresh food market, photo studio and a district office. Mantin thus serves as the main town for the people of Pajam.

Most of the estate workers are members of the National Union of Plantation Workers (NUPW). They have an elected representative to liase with the union. The main function of this union is settling disputes between management and workers.

Political consciousness is not very evident among the workers in Pajam. A branch of the Malaysian Indian Congress exists, holding meeting once in three months but there is little interest in politics among the Indians in Pajam.

The estate management comprises a manager, a chiefclerk, a clerk, a senior conductor and 3 other conductors. Assisting the conductors are 3 kanganies. This hierarchy is illustrated in Table 2.10.

The organizational hierarchy of this estate is headed by the manager who performs a wide range of executive and administrative functions related to the planning and coordination of work on the estate. He oversees the four branches that consitute the administration of the estate, namely a) the office b)the field c) the store d) general health. In his daily work routine, he divides his time between field and office. A large part of the morning is devoted to the field but the entire afternoon is taken up with office duties. In his administrative tasks the manager is assited by the chief clerk whom he consults. Sometimes the chief clerk deputizes the manager.

All instructions from the manager are channelled through the senior conductor to the conductors. Each conductor will in turn instruct their kangany under them. The kanganies will organise their respective work forces to accomplish their tasks. Everyday, the conductors supervise their labourers from 8am till 2 pm, ensuring that the various tasks such as tapping rubber, collecting and transporting of latex to the factory and weighing of the latex are done on schedule.

All financial dealings such as the payment of wages is personally handled by the chief clerk. The chief clerk is assisted in this task by the senior conductor.

are satisfactory by the standards stipulated in the Labour Code of 1958 (first formulated in 1912).

The rural clinic is managed by a nurse who conducts ante-natal clinics, gives demonstration on childcare, handles home deliveries, makes home visits, advises on family planning and treats minor ailments. Major cases are always referred to doctors at Health Centre in Mantin [Pusat Kesihatan Besar Mantin]. The rural health nurse holds sessions on health education and runs programmes as such topics as balanced diet, cleanliness etc. She also conducts demonstration on cooking nutritious food during the ante-natal and child health clinic days. However they are conducted in the morning and the estate workers usually miss them.

The workers also visit two doctors who have their private clinics in Mantin for treatment. It is not unusual for some of them to consult a bomoh in a nearby village or to go to the temple priest who deals in traditional medicine.

A mobile dental team from the Health Centre in Mantin visits the primary school and kindergarten once a year and pays special attention to pre-school children and standard one pupils. Sometimes they give demonstrations on dental care and hygiene. The older children go to "Pusat Kesihatan Besar" in Mantin for dental treatment.

The creche caters for all the infants and toddlers in the estate. There is an amah who looks after the children. The creche is open from 6.30 am till 2.30 pm. The children are supplied with powdered milk by the estate and they are given two feeds. The parents

of some children supply the amah with milk-powder for their children. There is no recreational facilities available for the children in the creche. The creche itself is no more than the floor-space of one house with a kitchen and an attached bathroom. The creche appeared dirty and flies were everywhere because some children urinate on the floor. Most of the children are usually not washed nor bathed before they are sent to the creche. Also some of the children walk around bare-footed.

With regard to sewage and toilet facilities, only 32 percent of the respondents have flush system toilets while the remainder use public toilet, river, pit or the open air system. The children, mainly infants and toddlers usually dispose their excrements in drains.

The rubbish is dumped in heaps in front of the house or at the back on one side of the house. Some of the heaps are burnt. Although the estate management employed workers to collect the refuse daily, they only do so twice a week. These workers collect the refuse and dump them into a refuse pit and later burn it. At the time I approached the pit it was overflowing with tin cans and rubbish which were attracting flies around the pit. Almost every family complained of mosquitoes, rats and flies.

Regarding the availability of water supply, every unit has its own piped water supply. The water supply can only be obtained during the following times:

Monday to Saturday	:	12 pm - 6 pm
Sunday	:	10 am - 6 pm

CHAPTER 3

HEALTH AND DISEASE

3.1 INTRODUCTION

The World Health Organisation (1947) defines health as "state of complete physical, mental and social well-being and not merely absence of disease and affirmity". According to Ramachandran (1982), in the more developed countries a high level of physical well-being has been achieved and problem of mental well-being is now being tackled. In contrast, at present in Malaysia we are only dealing with the physical well-being of our people. The characteristics of health problems in rural areas are generally similar as those in plantation sectors. In the plantation sector, there is a high prevalence of communicable diseases, rampant malnutrition as well as a variety of parasitic, viral and bacterial infections.

This chapter deals with the health and nutritional status of children which is based on anthropometric measurements. It will also discuss the common diseases that affect children in Pajam Estate and usual treatments sought by parents to maintain or improve their children's physical health.

3.2 HEALTH AND NUTRITIONAL STATUS

The study was conducted on 5 infants (1 year), 6 toddlers (1-3 years), 7 pre-school children (4-6 years) and 22 school children (7-14 years). Table 3.1 shows the distribution of children according to age and sex.

Table 3.1 : Age-sex distribution of children in the sample

Age group	Male	Female	Total	%
13 - 14 years	1	4	5	12.5
10 - 12 years	5	4	9	22.5
7 - 9 years	4	4	8	20.0
4 - 6 years	4	3	7	17.5
1 - 3 years	2	4	6	15.0
1 year	2	3	5	12.5
Total	18	22	40	100
%	45	55	100	

Anthropometric measurements which included weights, heights and mid-arm circumferences were taken from 40 children. The anthropometric data is provided in Table 3.2

Table 3.2 : Anthropometric data of children

Age group	Weight (kgs)		Height (cm)		M.A.C (cm)	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
7 - 14 years	26.7	7.6	133.4	9.1	18.5	2.3
4 - 16 years	14.8	0.1	100	4.4	15.7	0.7
0 - 3 years	8.9	1.8	66.7	7.8	14.2	1.3

M.A.C = Mid Arm Circumference

S.D = Standard Deviation

The anthropometric data provides insights into the prevalence of malnutrition among the estate children. Three indicators are employed to judge whether malnutrition is prevalent. These are : weight-for-age, height-for-age and mid-arm circumference-for-age. For the first two indicators the Iowa standard was used while the Jeliffe Standard was used for mid-arm circumference-for-age. WHO (1967 : 276) statistics indicates the following as below malnutrition level. Heights and weights, 15 percent and 30 percent respectively below the Iowa Standard while mid-arm circumferences that are 20 percent below the Jeliffe Standard are considered below the malnutrition level. Table 3.3 summarizes the findings of this study.

Table 3.3 : Number of children considered malnourished by the age-groups in terms of indicators. (Percentages in parenthesis computed from total in each age-group)

Age-group	Weight for age		Height for age		M.A.C for age	
	Number	%	Number	%	Number	%
7 -14 years	6	27.3	2	9.0	2	9.0
4 -16 years	4	57.1	1	14.3		
0 -3 years	4	36.4	9	81.8		

M.A.C = Mid-Arm Circumference

Table 3.3 shows that 14 children in the three age-groups are below the required standard for weight in relation to age, 12 children below the required standard for height in relation to age and two children whose mid-arm circumference were below the standard in relation to age. It also can be noted that the largest percentage of underweight (57.1 percent) children are from the second age-group (4-6 years), while largest number of children (81.8 percent) who were underweight belong to the third age-group (0-3 years). The two children with mid-arm circumference below the normal level are from the 7-14 years age-group.

The measurement for weight and height of the children in the study population showed 5 children (3 male and 2 female) were below the malnutrition borderline for weight and height. Whereas the measurements for weight, height and mid-arm circumference showed

that 2 children were below the malnutrition borderline for weight, height and mid-arm-circumference. It is significant to note that these 2 children are from the same family.

According to Chen (1974) children with mild or moderate Protein-Energy-Malnutrition PEM are often seen in hospital for intercurrent infections such as gastro-enteritis and respiratory infections. This is confirmed in the study population, where 49 percent of the children suffered from respiratory infections. Although some children were below the malnutrition borderline for weight, height and mid-arm-circumference, no severe PEM signs were detected. (A set of photographs were used to observe the severe malnutrition signs. See appendix 2 and 3).

3.3 HEALTH PROBLEMS

In order to analyse the health problems, data was obtained from the children's past history of illness. The health problems that were taken into account were those which occured within the period of six months before the field research in April 1986.

Table 3.4 gives the details of all health complaints or problems reported at interviews. These are ranked in the order of frequency. It is important to note that this table is concerned with health problem or complaints of children of the age of 14 years and below.

Table 3.4 : Health problems

Complaints or Problems	Frequency	%
Respiratory disorders	110	49.0
Gastro-Intestinal complaints	40	18.0
Hair problems	31	13.8
Skin complaints	21	9.5
Dental problems	10	4.5
Animal bites	7	3.0
Eye, ear and nose problems	5	2.2
Total	224	100%

Respiratory disorders constituted the most common cause of health complaints consisting 49 percent of reported health complaints. Table 3.5 lists the complaints of respiratory disorders reported in this study. The complaints like cough and colds and influenza

were the most common problems. These complaints were easily apparent among some children during the interview.

Table 3.5 : Number of children with frequent respiratory disorders according to age-group during the period of October 1985 - March 1986.

Complaints	Infant 12 month	Toddler (1-3 years)	Pre-School Children (4-6 years)	School Children (7-14 years)	Total
Cough	5	6	7	13	30
Cold	5	6	7	22	40
Influenza	5	6	7	22	40
Shortness of breath	-	-	-	-	-
Asthma	-	-	-	-	-

Respiratory disorders such as cold and influenza are common among all the children in the study population. Although every child had these complaints, it is more frequent among toddlers and pre-school children. In the case of coughs, it is high among infants, toddlers and pre-school children compared to school going children. It was observed that these problems were due to poor protection from cold weather in the morning, poor personal hygiene and poor sanitation. Some parents believe that "influenza" sometimes is due to the attacks of evil spirits. According to the rural clinic nurse, other respiratory disorders such as asthma, bronchitis, shortness of breath and phlegm have not been detected in children in the study population.

Gastro-Intestinal diseases is the second most common type of illness and constitute 18 percent of all complaints. Soil-transmitted intestinal worm infections are still very rampant in rural areas especially in rubber estates. According to the rural clinic nurse there is a high prevalence of intestinal parasites among the estate children. She said about 90% of the children between the ages of one and nine years suffer from worm infection. Recently, (during research) one girl (4 years old) had severe worm infection and was admitted to hospital for treatment. The high rate of worm infestation found here is mainly due to indiscriminate excreta disposal coupled with poor personal hygiene and walking bare-footed. Some mothers believed that worms are caused by excessive consumption of sweets and the use of dirty feeding bottles.

With the availability of anti-helmintic drugs like pyrantel pamoate (combantrin), Oxantel or Pyrantel pamoate (Quantral), treatment of soil-transmitted helminthiasis has become very effective and safe. However, because of their method of transmission, reinfection is very common. In this study about 24 children complained of worms. Table 3.6 shows it is very high among toddlers and pre-school children.

About 11 children between the age of 3 years to 10 years suffered from diarrhoea once every 3 to 5 months. Three of them had both diarrhoea and vomitting at the same time. The parents said that causes of diarrhoea and vomitting is due to germs in water and food, indigestion and wrong combination of food. A few older mothers believe that diarrhoea is caused by twisting of intestines which was caused by evil spirits.

Table 3.6 : Number of children with frequent gastro-intestinal diseases according to age-group during the period of October 1985 - March 1986

Complaints	Infants 12 months	Toddlers (1-3 years)	Pre-School Children (4-6 years)	School Children (7-14 yrs)	Total
Worms	1	6	7	10	24
diarrhoea		5	3	3	11
vomitting	-	2	2	1	5
others	-	-	-	-	-
Total	1	13	12	14	40

Hair problems were the third most common health complain and constitute 13.8 percent of all complaints. The most common hair problems is lice infestation. Contributing factors are the neglect of daily grooming and failure to shampoo the hair.

Daily grooming of the hair was not practiced in many children. Many parents also felt that a shampoo for the children's hair was not necessary. While there were parents who took pains to remove nits in the hair of the children, reinfestation of lice took only a couple of days. Since parents did not consider this as a health problem, they paid very little attention to it.

Skin related diseases were the fourth most common complaint and consists 9.5 percent of all complaints. Table 3.7 shows details of each such complaints.

Table 3.7 : Number of children with frequent skin related diseases according to age-group during the period of October 1985- March 1986

Complaint	Infants 1 year	TOddler (1-3 years)	Pre-School children (4-6 years)	School children (7-14 yrs)	Total
Rash, itching and burning	2	3	2	4	11
Scabies	-	2	4	1	7
Fungal infection	-	-	1	2	3
Boil	-	-	-	-	-
Total	2	5	7	7	21

Skin related diseases such as rashes, scabies and fungal infection are common among children in the study population. Table 3.7 shows that 21 children were found to have one form or another of skin disease. This figure includes 11 children suffering from burning, itching and rashes, 7 affected by scabies while another 3 had fungal infection.

Rashes are due to poor personal hygiene, heat and allergies. Scabies is a common skin problem in plantation sectors. It is a contagious skin disease caused by an itch-mite which burrows into skin and lays its eggs. The eggs eventually liberate young itch-mites and it is their movement across the skin that produces an intense irritation. This skin disease is often present in several members of a family. During the field research, this problem was present in all of the 5 children in a family. Among the 5 or them, 2 children had severe infection. Table 3.7 indicates that scabies is common

among toddlers and pre-school children. Fungal infection is not as common as the other complaints.

The main causes of skin diseases are lack of personal hygiene, overcrowding of sleeping places, poor sanitation and dirty immediate surroundings.

Twelve children (30 percent) between 5-9 years old had one or more deciduous teeth problems. In this age range, since it is difficult to distinguish between teeth missing due to carries and those missing due to exfoliation, only decayed or filled deciduous teeth were counted to indicate the carries present. Three children (25 percent) between the age of 6-8 years had one decayed deciduous teeth and one child had bleeding gums. Six of them (15 percent) had toothache complaints. Since they did not get to a dentist they could not locate the exact problem. It was found that dental carries was not common here. During the field research, all the children mentioned that they brush their teeth once a day. Use of tooth brush is common among these children but their preferred time of brushing is in the morning after waking up. The main cause of dental complaints is poor oral hygiene and lack of dental health education among both parents are children.

In epidemiological studies, estimates of the frequency of animal bites are of interest because they may reflect the risk of exposure to animals whose bites are either directly or indirectly the cause of severe disease or injury. The interview conducted in this study included specific questions on the history of animal bites such as by snakes, rats and scorpions. Animal bites constitute

3 percent of all health complaints. Dog bites were the most frequent. Among the 7 cases that had been reported 6 were dog bites and one scorpion bite.

Eye, nose and ear problems constitute only 2.2 percent of all complaints. Conjunctivitis is either viral which occurs in epidemic form or bacterial due to poor hygienic conditions or bathing in contaminated water. It is a contagious disease. Conjunctivitis is not common among children here because it is seasonal. So it is really difficult to report the occurance of this complaint. The other related problem is eye pain due to reading under a dim light and watching TV from too near the set. Ear problems include earache, deafness, and ear discharge. Five children of this study population had been affected by this problem. Two infants had ear discharge and three school going children suffered earaches. There were no complaints about deafness. Observations showed that there are cases such as nasal discharge and ear discharge that had not been reported by mothers.

Malaria is not a common ailment here. This is partly because Pajam Estate is not in a malaria endemic area.

In the past ten years there has been only one case of child mortality. This was the case of a two year old male. The symptoms were fever, cold and general debility. There has been no case of infant mortality but only one incidence of still-born. In this case the mother was ill before delivery, the symptoms being shortness of breath, vomitting, swelling of the feet and ankles. The condition is medically termed Pre-Eclamptic Toximea and it normally results

in still-birth.

3.4 TREATMENT

Rural Malaysians use several health care resources to cure an ailment. The resources include modern medical centres, traditional healers, pharmacies and self-treatments. The labourers in Pajam Estate use various resources to cure their children's ailments. Table 3.8 summarizes the measures they first take for their children's ailments.

Table 3.8 : The most preferred health resources used by parents

Health care resources	Number of respondents	%
Government clinic	7	23.3
Estate clinic	5	16.7
Private clinic	10	33.3
Self treatment	6	20.0
Traditional healers	2	6.7

Hence a total of 73.3 percent of parents send their sick children to medical practitioners of modern medicine. Therefore,modern medical services, which include the services in government clinic, estate clinic and private clinics are their first choice of health care resources for most of the respondents. Only two mothers would go to traditional healers, the remaining six mothers mentioned that they would treat their sick children on their own. Amstrong (1977) reported that

the use of self-treatment like nasal ointments has generally increased among rural people. The self-medication include purchasing quick medicines from pharmacies or sundry shops as penadol, vinag, vomum water, herbs and nasal oinment. The use of panadol and nasal ointments is very popular in Pajam Estate. These were used for mild respiratory illness. Traditional herbs and vomum water were mainly used for gastro-intenstinal disorders.

From Table 3.8 it can be concluded that the private clinics are most popular health resource among the respondents. The cost of each treatment at a private clinic ranges from $7 to $10 per visit. Although the government clinic and the estate clinic provide free medical services, the respondents prefer private clinics for various reasons. Below are samples of the common reasons given by three respondents.

Mr. Chicken Gounder : "I always go to private clinics because they give better medicines which cure illnesses faster.

Mrs. Thomas : "I take my sick children to private clinics because private practitioners give injections which I favour very much. Besides I don't like government clinics because they seldom give injections to sick children."

Mr. Nadarajah : "I feel private doctors show more interest in sick children and their ailments. Private doctors always examine them thoroughly and explain the treatment they are prescribing, so I feel they are very good.

Though only 6.7 percent go to traditional healers as their first source of treatment, there are many who go there when the modern medicines fail to cure their sick children. Ten respondents felt that there are diseases that cannot be cured by modern medicines. The cost of each treatment by traditional healers ranges from $3 to $5. They are consulted for such problems as fever and cold. Below are the opinions of parents about traditional healers.

Mrs. Segar : "I believe that there are illnesses due to attack of the evil spirits or by charms on my family by our enemies."

Mrs. Papati : "I always take my children to traditional healers because they charge less and give good treatment.

CHAPTER 4

FACTORS THAT AFFECT HEALTH

4.1 INTRODUCTION

According to William and Jelliffe (1976)

> Children are born into two external worlds. The first is that physical and geografic surrounding and the second is that of culture, the inter-connected system of customs, ideas and behaviour that has been created for them by their elders. All communities have developed their own cultural pattern which is define as the common way of life shared by all members. Their health conditions related to their both worlds.

In the course of interaction with the physical environment and society, a child is exposed to various factors that affect health and disease. Cultural aspects such as belief, attitudes, ideas, values and customs directly or indirectly affect the health of children. These chapter will deal with such factors as food, bousing, sanitation, poverty, ignorance of parents and cultural factors that affect health of children in Pajam Estate.

4,2 FOOD

Food is a basic need of human beings. Webster (1961) defines food as

> Material consisting of carbohydrates, fats, proteins, and supplementary substances (as minerals and vitamins) that is taken or absorbed into the body of an organism in order to sustain growth, repair and all vital processes and to furnish energy for all the activity of the organism.

Food is important to sustain growth. Everyone has to go through the life cycle as an infant, toddler and child before becoming an adult. The feeding pattern varies at every stage of the growth. Hence an infant can only take liquids such as milk and water. At this stage breast-milk is very important. Jelliffe (1966) mentioned human breast-milk fully satisfies the nutritional requirement of the growing infant up to the age of approximately six months. Further he added that breast-fed babies loss less weight after the birth than do artificially fed infants.

In the study sample, mothers of 40 children were asked regarding breast-feeding of their children. It was found that 70 percent of them (28 mothers) breast-fed their children. The length of time they breast-fed their babies varied from mother to mother. The exact duration of breast-feeding was not established. Others fed their children with cow's milk, condensed milk or powdered milk. Though 70 percent of them breast-fed their babies yet the percentage is low compared with the finding in Perlis, where the figure was as high as 92.5 percent (Teoh: 1973).

Starchy food is introduced early in life. After 30 days of birth infants are fed with rice symbolically by touching a handful of the rice paste on their lips. Very few Indian parents in Pajam Estate prepare a nutritious, easily digestable baby-food for their children. They merely give pre-cooked cereals or biscuits or a portion of adult food such as rice with soya sauce, yeast extract or gravy and occasionally with fish if the child is able to take it. By the end the first year the child share in the family diet which even if well balanced is often too tough and spicy for them. Typically the children's diet is rice with gravy and occasionally some fish.

As toddlers the children are free to roam about with their elder siblings and meals are usually not properly supervised. It was observed that the diet for growing children is starch heavy. This practice has been passed down the generations. The most common item of food found here are lentils, potatoes, rice and canned sardine. Meat is cooked twice or thrice a month. Since fruit is not easily available here, children hardly get to consume it. Children between the ages of 3 years and 12 years often buy junk food with their pocket money. Sometimes these snacks replace a proper meal. As Mc Arthur (1971) found those households with malnourished children tend to spend more money on junk food.

The food consumption behaviour of Pajam Estate shows that their diet is not balanced and appears to be unsatisfactory by being low in protein, vitamins and iron. This might be the reason for their being underweight or underheight after the age of six months as revealed in the previous chapter. Signs of mild or moderate Protein-Energy-Malnutrition (PEM) are gastro-enteritis and respiratory tract infections

(Chen 1974). These signs were evident here; 49 percent of the children in the study sample suffered from broncical infection. Although severe signs of PEM was not detected here but if parents continue the present feeding practice, it might lead to severe PEM. Of the 70 cases of severe PEM cases admitted into the paediatric ward in General Hospital from 1st January 1978 till 1st January 1979, 59 were Indian children (Rebecca 1979:7). Kandiah (1979), who conducted a study on pre-school children in Sungai Chor Estate in Selangor, found that the incidence of severe PEM was 2.5 percent but 20 percent indicated moderate PEM. In 1979, the Institute of Medical Research (IMR) did a comparative study on children between the ages of 7 years and 18 years comparing the anthropometric data of children from three places: Mukim Ulu Jempol (a group of traditional Malays), the State Land Development Scheme of Ulu Rening and an Indian community This study revealed that the children in rubber estates were nutritionally worse of than those in the other two areas. These studies conclude that nutritional deficiency is prevalent among children in plantation sectors.

Food consumption behaviour is also related to various beliefs and dietary practices. These can be one of the many pre-disposing factors in malnutrition an important precipitating factor in most instances is infection. Jarret stated that nutritional needs of the body increases during an episode of illness, when the appetite is often decreased. He said, in addition to this, various foods are withheld in the mistaken belief that such practices hasten recovery. This was evident in the study population as responses from several people in Pajam Estate show:

> Mrs. Papati (56 years old)
> "If a child is having fever, she is not allowed to eat vegetables, fruits and sweets because these could make them more sick."

During my field survey, Malathy, a five year old child who was having fever said,

> "I am given milo for breakfast, rice porridge for lunch and dinner."

A similar remark was made by Thivagaran (six years old boy) who had a 'cold'.

> "I am given milk for breakfast, rice porridge with salted fish for lunch and dinner".

Similarly various foods are often withheld from a child suffering from diarrhoea, measles and other illnesses. These mistaken beliefs can only lead to poorer health.

Another factor that should be considered here is the method of cooking. Every Indian in Pajam Estate cooks rice by boiling it in a pot full of water which is then poured away after the rice is cooked. Rice prepared in this way loses a large proportion of the thiamine and other vitamins, iron, calcium and proteins it contains through the water that is drained away. Chelliah (1979:9) noted that as a result of this method of preparation the washed rice on which the children and their family are fed on, contains less than an eighth of the amount of vitamins originally contained in the whole grain.

The cooking of other foodstuff too result in a great deal of nutritional loss through excessive heating and oxidation. Prolonged cooking robs food of thiamine, vitamins A and C and this applies particularly in the cooking of vegetables (Chelliah 1979:9). The use of excessive water in the cooking of potatoes, peas, beans and green leafly vegetables causes the nutrients present in the food to dissolve in the water. Pajam Estate residents practice this method because they believe that all bacteria is killed through a prolonged cooking process. Indians usually prefer overcooked food. Their method of cooking result in their meals lacking vitamins, thiamin and iron. With regard to the status of thiamine nutrition among Indian children, Kandiah and Lim (1977) reported that 13.6 percent of a group of estate pre-school children and 28.7 percent of school children had biochemical measurements indicating the incidence of thiamine deficiency.

It is thus evident that due to unsatisfactory diet, Indian children suffer from PEM, thiamine and vitamin deficiency which leads to health problems such as gastro-intestinal and respiratory tract infections which can sometime prove fatal among children.

4.3 HOUSING

The estate management provides housing for all the labourers. The Worker Minimum Standard of Housing Act of 1966 requries the management to provide a covered floor space of not less than 260 square feet for a household of not more that 5 adults. The rooms in Pajam Estate are small measuring 7½' by 10'. There is not enough floor space for children to study and play. Frequently, the kitchen and the living-room become bedrooms. The survey in Pajam Estate showed 47 percent of the

respondents were provided with inadequate housing if a criterion of 3 persons to a room is taken. This inadequacy of living space also seen from the fact that 67 percent (20 respondents) of the respondents used rooms other than bedrooms for sleeping. In another study on Rubber Estate Workers which observed a similar situation, 24.4 percent (228 respondents) were provided with inadequate housing, 57.6 percent used the kitchen and 42.3 percent used the living-room for sleeping besides the bedroom (SERU 1981 : 52).

Adequacy of ventilation is important to healthy living. Houses in Pajam Estate have no proper ventilation because during the mornings residents leave for work and keep their door and windows closed. They only open it after 2 pm or 3 pm (when they return from work) and this is again shut at 6.30 pm. There is thus no proper air movement in their houses. Furthermore there is only one window per room and it is small. Koren (1980) noted that odours which are not dealt within poorly ventilated areas affect the well-being of the individual.

According to Alvin L. Schorr:

> The following effects may spring from poor housing: a perception of one's self that leads to pessimism and passivity, stress to which the individual cannot adapt, poor health, and a state of disatisfaction, pleasures in company but not in solitude, cycnicism about people and organisations, a high degree of sexual stimulation without legitimate outlet, and difficulty in household management and child rearing and relationships that tend to spread out in the neighbourhood rather than deeply into the family.

In respect to the relationship between disease and housing Koren (1980: 182) noted that infectious and chronic disease are more prevalent in poor housing than better housing.

In light of these statements it can be said that poor housing in Pajam Estate is one of the factors that causes the spread of disease among the people in the estate.

4.4 SANITATION

Every house in the study sample was examined for sanitary conditions. It was observed that 43 percent were and 57 percent were moderately clean. The immediate surroundings of the dirty houses were littered with waste disposal including garbage and animal waste. In a study on another plantation Indian community, Rabindra Daniel (1978:121) found that immediate surroundings around the labour lines were dirty, and turned soggy during the rainy season. I shall discuss four aspects of sanitation namely; water supply, sewage disposal, sullage water, and sanitary disposal.

(a) Water Supply

The availability of efficient, clean water is vital to human health. In fact this point has been stressed frequently by the World Health Organisation which considers the provision of a safe and convenient water supply as a single most important project that could be undertaken to improve the health of rural communities.

Since the Pajam residents receive only six hours of water supply a day they have to store water for drinking and bathing purposes. It was observed that the water was contaminated through the use of rusty pails and dirty earthen vessels to store water. A similar situation was noted by both Senan (1976) and Koay Meera (1982) in their respective studies. Senan noted that the chances of water contamination is higher because rusty tanks and dirty vessels were used for storing water in the estate he studied. While Koay Meera reported that the people in the estate she studied stored water in rusty tanks and used unclean utensils and containers without cover.

(b) Sewage disposal

Sewage disposal has become a growing problem in Malaysia. Past and present experiences have shown that improper disposal of sewage has endangered the environment and people's health (Leong : 1979). Though the estate management employ workers to collect rubbish, unhealthy conditions prevail. People indiscriminately throw their rubbish at the back or the side of their houses. The refuse pit was not covered properly and could thus serve as the breeding ground for mosquitoes and flies.

(c) Sullage water

In Pajam Estate the sullage water from baths, cooking and washing clothes is discharged into the drains. It was observed that the sullage water channel was clogged causing stagnant pools. Its neglect could lead to health hazards. Diseases caused by pathogenic bacteria transmitted through vectors such as insects and rodents that inhabit in clogged

drains can spread easily under such conditions.

(d) Sanitary disposal

Only 32 percent of the respondents here have flush system toilets, while the remainder used public toilets, the river, pits or the open air system. The children, mainly infants and toddlers, defecate into drains around their houses. Although the management provides public toilets, these are not well-kept. The conditions there could attract flies and mosquitoes and it could be a contributing factor to ill-health.

The rural clinic nurse pointed out that poor sanitary condition is the major contributing factor in gastro-intestinal complaints. Kandiah and Lim (1977) and Ramachandran 91979) reported that the high rate of worm infestation in children is mainly due to the indiscriminate disposal of excrement coupled with the lack of personal hygiene and from walking bare-footed. Koay Meera(1982) noted that poor environmental sanitation of the estate and the houses could account for the infectious diseases such as respiratory diseases, gastro-intestinal and skin diseases, while Eddy Lo (1982: 11) stated that diarrhoeal diseases are associated with poor personal, food and envoironmental sanitation.

Thus it can be concluded that the poor sanitary conditions, inadequate water supply, poor refuse disposal, and insanitary toilets in Pajam Estate could lead to respiratory, skin and gastro-intestinal diseases.

4.5 POVERTY

Poverty has been defined as a situation of inadequacy of income necessary to command that assortments of goods and services such as food, clothing, shelter, education and medical care required for decent living. The poverty line for Malaysia in 1984 was $375 per household of 5 members. The monthly per capita income is $75. A comparison of the estate workers with the estimated per capita poverty line income reveals that 39 percent of the households fall below the poverty line. This income is sufficient to provide the basic need of life such as food and clothing to sustain themselves. According to Rabindra Daniel (1983 : 125) this income is inadequate for the proper social functioning such as maintaining a family, receiving proper education and enjoying good health through the intake of good nutrition." This proves that their income is insufficient for better living. Furthermore wasteful expenditure of parents on alcohol, expensive furniture and clothing contributes to persistent poverty.

World Bank (1981) reported that a child born in a low-income country had a life expectancy of only 50 years at birth compared with life expectancy of 61 years for middle and 74 years for high income countries in 1979 (Teresa J. Ho 1982 : 1). Further Rajakumar (1979 : 2) mentioned that poverty is inseparable from malnutrition and undernutrition, from overcrowded housing, from unsafe water supply, exposure to vectors, disease and hazards of occupations.

Due to poverty, parents in Pajam Estate are unable to provide for proper clothing, nutritious food and proper medical care. Since private clinics charge fees , some Pajam Estate people complained that they cannot afford to pay high medical fees. Due to this problem they

only visit doctors who charge less than $10. Some of them are even unable to pay $10 a month for the medical care of their children. Therefore, I conclude that poverty which is closely related to other factors such as diet, clothing, education and medical care influence the health status of the Indian workers children in Pajam Estate.

4.6 LACK OF EDUCATION OR IGNORANCE OF PARENTS

According to Michael Khor (1979 : 3)

> An important factor affecting health of young children is the lack of education in parents. Lack of education leads to many problems such as ignorance regarding balanced diet, breast-feeding, children's hygiene, child-care, causes of illness etc.

From the study population, I discovered that 20 percent of the fathers and 26.7 percent of the mothers had no formal education, while 67 percent of the fathers and 70 percent of the mothers had only primary education. Their education can hardly cope with the requriement of knowledge on child-care, causes of illness, personal hygiene etc. Since the higher proportion of parents in the study sample had only primary education, they lacked the knowledge of balanced diet for their children. Interviews with mothers revealed that they have no idea of a balanced diet. They are satisfied that every meal stays the pangs of hunger and growth will be normal. Extracts from interviews quoted below indicate the ignorance among respondents in respect to balanced diet:

Mrs. Manickam (mother of four children)

> "I cook anything that is edible. Only lentils and potatoes are easily available

> in sundry shops in Pajam Estate so I cook them often".

Mrs. Nadarajah

> "What I cook is immaterial to me because my children eat anything that I cook."

Mrs. Segar

> "My two children don't like fish or vegetable. They eat only with gravy, therefore I don't force them to eat fish or vegetables."

The above responses suggest that Pajam children are usually not provided with a balanced diet. Furthermore parents are generally unconcerned whether the foods they provide to their children are nourishing; they seem more concerned in ensuring that their children are satisfied with the meals.

Aggressive advertisements of tinned and powdered milk in the mass media have had a detrimental influence on parents in Pajam Estate who have opted for artificial infant feeding. At times, the artificial feeding has caused health disorders to their children. Many infants were reported to having diarrhoea after changing to certain brands of milk powder. In a document on child health in Malaysia (1980), it was noted that the major cause of infant mortality is gastro-enteritis which is generally aggravated by the lack of adequate knowledge of artificial feed as substitudes for breast-feeding.

Many children between the ages of 7 years and 9 years lacked personal hygiene. This is due to their parent's ignorance and neglect. I observed that children of this age-group had long and dirty

fingernails, were very poorly clothed and had no footwear. The 17.9 percent of the children in the study sample complained of head lice and 50 percent of the children were observed not to be wearing any type of foot-wear. Respondents were not aware of the hazard of walking unshod and hence the neglect of foot-wear. Marimuthu (1979) mentioned that in Malaysia, especially in rural areas, parents are completely unaware of the ways that intestinal parasites are transmitted and as a result worm infestation is rampant. The study in Pajam Estate revealed that 60 percent (24 children) or children suffered from intestinal parasites.

The low education level of the study population has been a major stumbling block to good health among them. My study reveals that Indian estate workers are ignorant of the drawbacks of giving-up breast-feed in favour of powdered or condensed milk. They are ignorant of food value in any given meal. They are unaware that intestinal worm infestation can be prevented by having shoes on when going out doors. During the field research I came upon a child who ran a high temperature. The parents of the girl preferred self-treatment to taking their child to a doctor. The lack of education is thus one of the main causes for their failure to utilise health facilities.

4.7 SOCIO-CULTURAL FACTORS

Culture combined with religion does have a firm grip on the attitudes of Indian labourers. They attribute to many illness that afflict them or their children. They also have other simplistic explanations for the cause of any particular ailment. Consequently they turn to their "traditional quack" for treatment, of those interviewed, 6.6 percent

visit the traditional healer as of first choice, while the rest made the traditional healer their second or third choice.

Some parents in the study population believe that fever or common colds are caused by sudden fright or shock especially when witnessing two men fighting, seeing a large fire with black smoke clouds, and surprised by loud noises and even dogs barking. Hence they resort to traditional healer or temple priest for the treatment of these ailments. Many people believe that if a child suffers from diarrhoea then the child's intestines have been dislodged and must be reset in place. The traditional healer, or the local priest would also confirm the cause, and recommend that the child be held upside down so that the intestines would return to their proper place. Older people advocate a massage of the abdomen to reset the child's intestines. A similar belief was found among Indians in Sabak Bernam, Selangor (1973 : Medical Journal).

People also believe that diseases are caused by spirit invasion especially the spirit of elders which are believed to keen in reuniting with the living relatives. In the event of such a disease parents usually take their children to a "bomoh" or a temple priest and he would hold a prayer service to separate the child from the doting spirit. This belief is more prevalent among the older folk. Often enough sickness is attributed to spirits or gods who have been provoked. In such cases special prayers are held to appease the gods and to intercede with them for good health for the children. During the temple festival in Pajam Estate most families participate in special prayers and offerings of coconut, money and food to gain the good favour of their gods which

means protection from ailments.

It seems that the cultural practices of the Pajam Estate may in some ways hinder the maintenance of good health among the people. Sometimes, as a result of mistaken beliefs the people may delay treatment or provide a wrong treatment which may even turn out to be fatal.

CHAPTER 5

CONCLUSION

If the future of this country is in the hands of the younger generation, all the more is there a need to plan their health today for them to be the successful people of tomorrow.

From my field research, the health status of Pajam Estate children can be considered satisfactory with room for improvements. The child mortality rate is low. There were only two cases of child mortality within a period of ten years. Malnutrition too does not appear to be a serious problem in Pajam Estate. Although anthropometric measurements demonstrated that some of the children are under-weight and a high proportion of infants and toddlers are below the normal height yet observations revealed that there is no severe Protein-Energy-Malnutrition (PEM). They are considered marginally malnourished with signs of wasting and stunting and respiratory tract infections.

The disease pattern in this estate is similar to those for the country in general. It shows that illnesses in the children are mainly infectious diseases such as respiratory tract infection, gastro-intestinal complaints and skin diseases.

Most of the toddlers and pre-school children who attend the creche are generally more affected by gastro-intestinal tract and skin diseases compared to school going children. This might be due to the poor environmental hygiene in the creche. In general, there is a possibility of outbreaks of infectious diseases given the poor environmental sanitation and improper health faiclities and education.

In recent years, there has been a shift in attitudes among the labourers in favour of western medicine. The majority of the respondents (73%) favoured western medical treatments with private doctors preferred over the generally less qualified government medical personnel. Although many preferred modern medicine, Pajam Estate people also frequently resorted to traditional healers for certain complaints like fever and diarrhoea which people believe are caused by spirit invasion.

Health is influenced by factors such as breast-feeding, a balanced diet, education, income and environemntal sanitation. The percentage of breast-feeding mother is encouraging. This indicates that mothers in Pajam Estate are aware of the importance of breast-feeding. The children's diet, unfortunately has a high carbohydrate content while consumption of animal protein such as fish and meat is particularly low. Furthermore the intake of fruit is noticeably absent from their diet. As a result of out- moded beliefs they withold nutrient food items from children during an illness thus aggravating the situation. Their method of cooking rice of vegetables destroy the vitamin content of their food. These practices have

not helped the physical and mental development of the children.

Poor sanitary facilities such as dirty toilets, limited water supply, improper sewage system, and the indiscriminate disposal of refuse lead to poor hygiene and only invites outbreaks of epidemic diseases. The spread of disease carrying agents such as worms, rats, flies and mosquitoes need to be systematically destroyed. Failure to control effectively these agents has led to outbreaks of diseases such as gastro-intestinal infection and skin problems.

The low education level or ignorance among parents have led to poor health among children that could have been prevented. The children needlessly suffer because the parents do not know about proper child-care, personal hygiene, and the choice of health-giving foods. Their ignorance is further compounded by financial constraints and cultural beliefs that come down the generations. Based on such cultural beliefs they give a faulty explanation for the occurrence of certain sicknesses and recommend a treatment that could jeopardise the health of little children.

In a plantation community the helath of all its members are closely interlinked with one another therefore it is important to oversee that the health of the entire community is maintained.

Most of the health problems encountered in Pajam Estate can be prevented and controlled through the following measures:

1. Extend the water supply to this estate community. In so doing the people would have ample quantities of treated water.

2. Provide adequate toilet faiclities. This would minimise faecal contamination of soil and water. Toilet facilities which meet the general sanitary criteria, could be constructed inexpensively.

3. Educate the residents to dispose of their refuse more methodically rather than dump it everywhere. They could be encouraged to burn their rubbish daily, used disposal bags and covered dustbins.

4. Clear up the drains often to ensure unhindered flow of refuse water from homes.

5. Launch "gotong royong" projects to clear the environment once a month. Since every member of the estate community is responsible for their environmental sanitation, these projects would themselves be self-educating to the members. This will provide a healthier place to live in and encourage a sense of unity among plantation workers.

6. Promote health education programs for better living conditions. School authorities should provide health education for children and mobile medical units could give lectures and demonstrations for adults. Their subject matter would include the following:

   a. use of toilets
   b. washing of hands after going to toilets
   c. having clean teeth, nails and hair
   d. the use of the handkerchief
   e. the need of daily bath
   f. the washing of hands before meal
   g. wearing clean clothes

h. the wearing of footwear outdoors.

Emphasis must be given to the method of cooking, the importance of a balanced diet, basic sanitation, child-care and early medical treatment. The subject could be presented in a simple and practical form using the local language and vernacular terms which are easily understood. Demonstrations using audio-visual aids would be more beneficial than a lengthy and detail discourse. Such activities should be maintained on a weekly basis.

7. The rural clinic nurse and the visiting medical officer should form an "Estate Medical and Health Board" to identify and solve the health problems faced by the plantation community.

8. Update the Labour Code of 1958 to include better medical benefits. This would be the task of the Ministry of Labour.

9. The estate management could allot suitable land to plantation workers to cultivate a variety of vegetables and to rear poultry and farm animals.

It is clear from the above that health is by its nature multi-pronged. A meaningful approach for the improvement of health would require the co-operation of many sectors, namely education, social, medical, employement etc. and agencies. The task of improving the quality of life in Pajam Estate cannot be shouldered by the government alone. The management has its part to play and voluntary organisations could assist to promote a state of health in estates that is above satisfactory.

Appendix 1 : Example of Ante-Natal Cards

* underweight

(KIK/4—Pin. 1/83)

No. K.P. Ibu: 5628463
B/C F 842288

KAD KESIHATAN ANAK

Klinik: LINIK DESA PAJAM.
Tarikh: 5 - 1 - 1984
Nama Anak: R. SARAVANAN
Bangsa: INDIA
Anak Yang Ke: 5
Lelaki/Perempuan: Lelaki
Tarikh Lahir: 7/10/83
Tempat: Hospital
Berat Lahir: 3.25 kg.
Sambut Oleh: Staff Hospital
Jenis Kelahiran: Normal Dallvary.
Keadaan Lahir: Baik.

Nama Ibu: MANICKAM
Kerja Ibu: Penoreh getah
Nama Bapa: RAMA MURTHY
Kerja Bapa: Penoreh getah
Alamat Rumah: PAJAM ESTATE

PPK 2
22/8/85
21/8/86

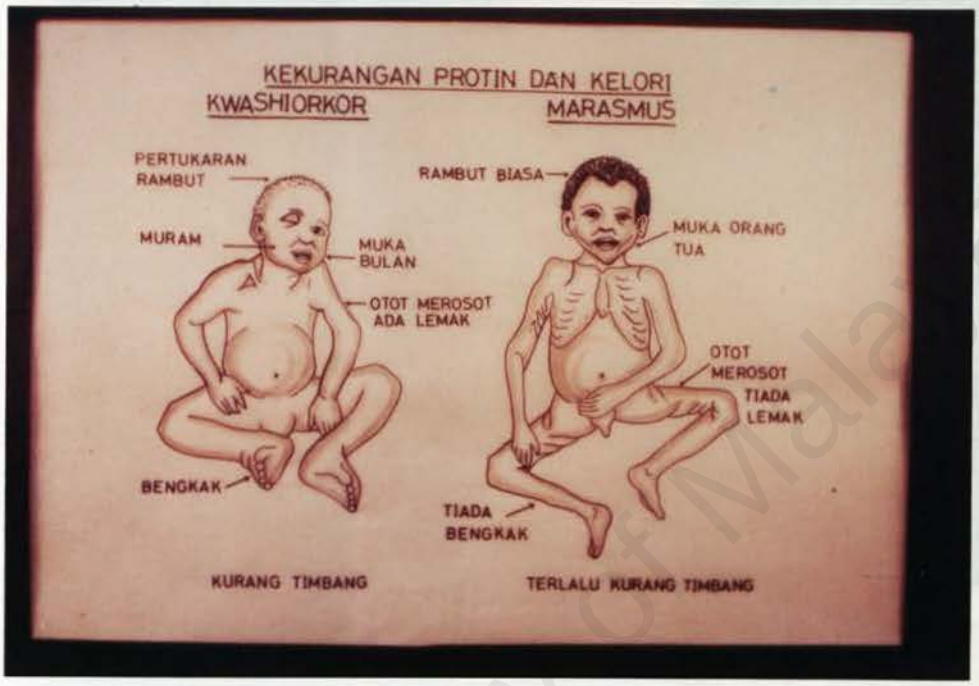
5/1/84 · 26/7/84
7/6/84 26/7/85

PELALIAN

Jenis Pelalian	Tarikh	Umur	Nama	Jenis Pelalian	Tarikh	Umur	Nama
BCG	8/10/83			Polio pertama 38A17 21	16/2/84	4/12	
TA / ~~DA~~ pertama 7/55	16/2/84	4 month		Polio kedua	20/12/84	1year 2 month	
TA / ~~DA~~ kedua	20/12/84	1yrs 2 month		Polio ketiga 44A06 18/8/86	9/5/85	1 years 6 month	
TA / ~~DA~~ ketiga 26921 9/9/84	9/5/85	1yrs 6 month		Semula 1			
DA semula 1				Semula 2			
DA semula 2				Cacar			
Lain-lain				Periksa Parut			
	22/8/85	1 year 10 month		Cacar Semula			

Pelalian permulaan selesai:

Appendix 3 : A Set of Photographs Which Was Used to Detect Nutritional Deficiency



Xerosis

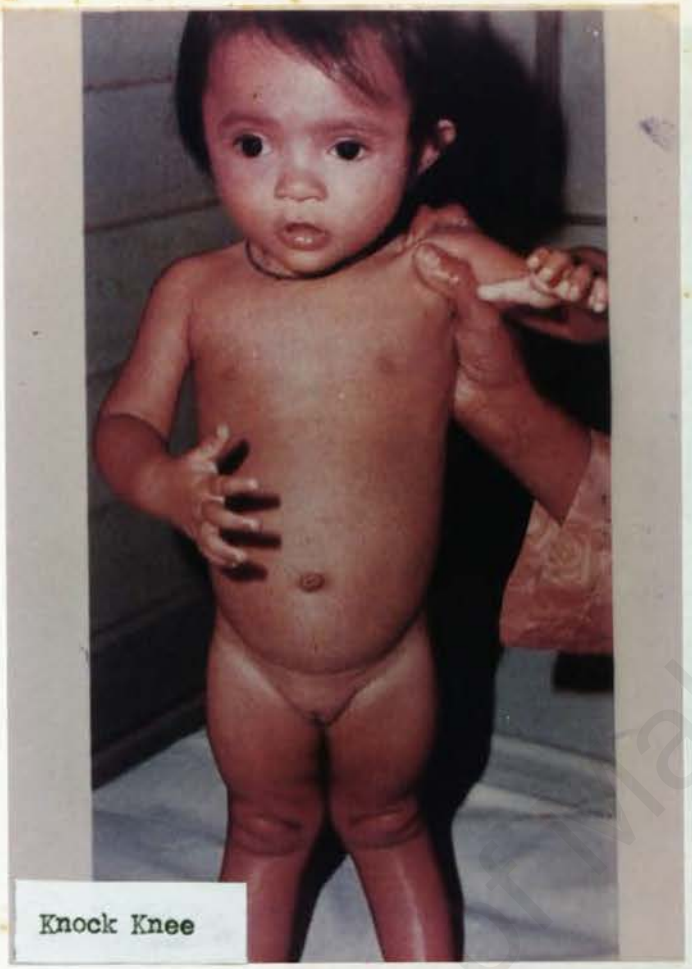
Anemia - seen in tongue

Healthy

Kwashiorkar

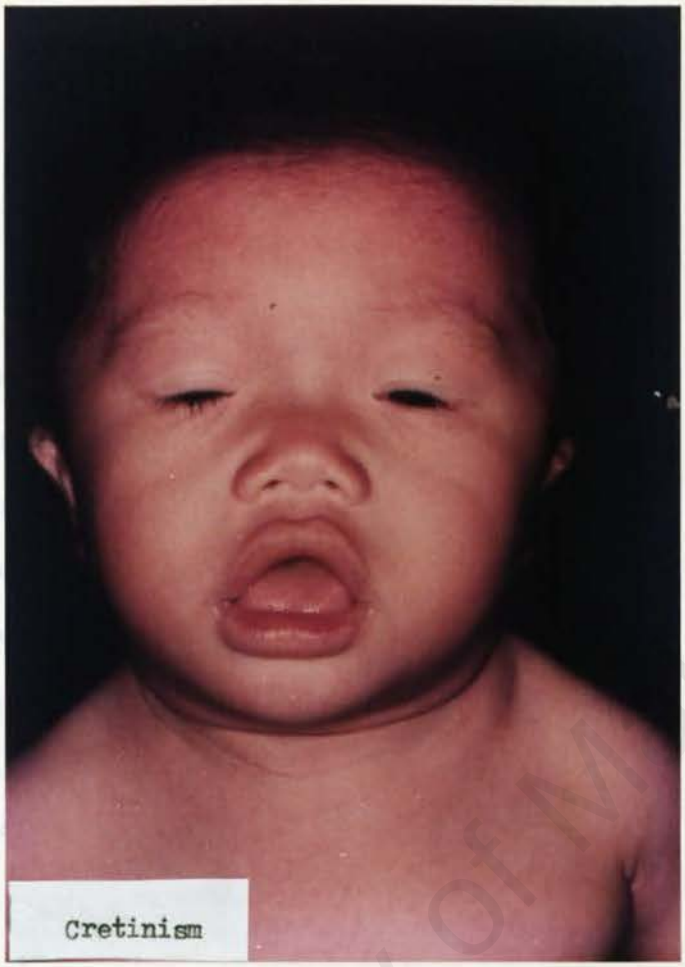
Protein Energy Malnutrition

Marasumus



Knock Knee

Bow legs



Cretinism

Protein Energy Malnutrition

Appendix 4

INTERVIEW GUIDE

Section 1

1. Address :

2. Name of Husband :

   Name of Wife :

3. Husband's educational level :

   Husband's occupation :

   Wife's educational level :

   Wife's occupation :

4. Husband's income :

   Wife's income :

   Others :

5. Number of children below age of 14 (Record their name, age, sex)

	Name	Age	Sex
i)			
ii)			
iii)			
iv)			
v)			
vi)			

6. Religion :

7. Do you own any property?

   The types of property :

8. Do you rear animals:

   The types of animals reared:

9. Housing facilities :

   Number of rooms :

   Kitchen :

   Bathroom :

   Toilet :

10. What is your usual source of drinking water?

   a) Piped in house

   b) Pump in house

   c) Pump, or piped, public

   d) Open well

11. Do you store drinking water?

   i) If yes : What kind of container do you use for storing you drinking water?

   ii) Methods of storing :

      a) Water tank

      b) Jar, earthen

      c) Drum

      d) Cans

      e) Plastic containers etc.

12. i) Do you or any member of the household usually treated water before drinking?

   ii) What is the main method used?

      a) Boiling

      b) chlorination

      c) Filtration

      d) Others

13. i) Do you pay for this supply?

ii) Are you satisfied with this supply?

14. i) Do you get electricity supply?

ii) Do you pay for the supply?

15. i) What kind of toilet facilities do you have?

a) Open fields, rivers etc.

b) Flush inside house

c) Flush outside house

d) Open pit

e) Others

ii) How do your children disposed their excreta (according to their groups such as infants, toddlers, pre school children and school going children).

16. What is your main method of garbage disposal?

a) Collected by the garbage collector

b) Burning

c) Composting

d) Dumping

e) Others

17. i) Is Malaria Eradication Program carried out at your place?

ii) How often do they come?

18. i) Number of clinics here

ii) Types of clinics

iii) Size of each clinic

iv) The number of staff

v) Is there a resident doctor?

vi) Ambulance facilities

vii) Types of health facilities provided by the clinic

19. Is there any private practitioner here?

20. What about traditional healers?

21. Any voluntary organisations?

Name:

22. Is there any political party here?

23. Educational facilities (schools, kindergarten etc.)

24. Recreational facilities

Section 2

1. Did any of your children fall sick during the last six months?

Yes: (a) Who are they

No :

2. What is the name of his/her illness? (Each child to be questioned)

3. How serious was his/her illness? Questions each child who was sic.

4. How many days was he/she sick? QUestion each child who was sick

5. Did the condition cause him/her to keep away from school?

6. Was someone consulted during the course of the illness?

7. Who was the consultant?

a) Doctor

b) Nurse

c) Midwife

d) Hospital Assistant

e) Traditional healers

f) Relatives/friends

g) No one was consulted

8. How many days during the illness was the person consulted?

9. The health facility that was consulted, was it public or private?

10. How much in all was spent for the sick person's treatment?

11. Was any other medicine purchased for the sick person?

12. What food did you give your child during the time he/she was sick?

13. Do you withhold any food items during this period?

14. What do you think was the cause of the problem?

15. Do you believe in Western Medicine?

    If yes : reason

    If no : reason

16. i) If the first resource failed to cure your child what would you do?

    ii) If the second resource failed what action would you take?

    iii) If the third too failed?

17. Do you believe in traditional healer?

    If yes : reason

    if no : reason

18. Do you purchase medicine from sundry shop/drug store?

19. Do you boil water?

    If yes, reason for boiling

    if no, reason

20. Did anyone encourage you to boil water?

21. Do your children brush their teeth daily?

22. Do they wash their hands before meals?

23. Do they wear any footwear when they go outside the house?

(Questions 1 9, 20 23 were used to interview the children above the age of 7 years).

OBSERVATION

1. General Cleanliness

   i) Home

   ii) Immediate surroundings

   iii) Sewage disposal

   iv) Sullage water channel

2. Children's personal hygiene

3. Feeding habits

   Food items

4. The method of cooking

5. The method of storing food and water

6. Health problems (observe the symptoms)

7. Parents' leisure activities

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