A CROSS SECTIONAL STUDY ON THE PREVALENCE OF ACUTE AND CHRONIC MALNUTRITION AND ITS DETERMINANTS AMONG 6 MONTHS TO 2 YEARS CHILDREN IN RURAL AREA, TAMIL NADU

Dissertation submitted to

THE TAMIL NADU

DR.M.G.R. MEDICAL UNIVERSITY

in partial fulfilment of the regulations

for the award of the degree of

M.D. (Community Medicine)

Branch XV

GOVERNMENT KILPAUK MEDICAL COLLEGE

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

CHENNAI, TAMILNADU

APRIL 2017

BONAFIDE CERTIFICATE

This is to certify that this dissertation entitled **"A CROSS SECTIONAL STUDY ON THE PREVALENCE OF ACUTE AND CHRONIC MALNUTRITION AND ITS DETERMINANTS AMONG 6 MONTHS TO 2 YEARS CHILDREN IN RURAL AREA, TAMIL NADU"** submitted by **Dr.DHANALAKSHMI, S,** post graduate student, Department of Community Medicine for partial fulfillment for the award of the degree, Doctor of Medicine in Community Medicine by The Tamilnadu Dr.M.G.R. Medical University, Chennai is a bonafide work done by her at GOVERNMENT KILPAUK MEDICAL COLLEGE, CHENNAI, during the academic year 2015 - 2017.

Prof.Dr.K.MARY RAMOLA, M.D.,
Professor & HOD,
Dept. of Community Medicine,
Government Kilpauk Medical College,
Chennai -10.

Prof.Dr.R.NARAYANA BABU, M.D.,DCH.,
DEAN,
Government Kilpauk Medical College,
Chennai-10.

DECLARATION

I, **Dr.DHANALAKSHMI. S,** solemnly declare that this dissertation, entitled **"A CROSS SECTIONAL STUDY ONTHE PREVALENCE OF ACUTE AND CHRONIC MALNUTRITION AND ITS DETERMINANTS AMONG 6 MONTHS TO 2 YEARS CHILDREN IN RURAL AREA, TAMIL NADU",** has been prepared by me, under the expert guidance and supervision of **Prof.Dr.K.MARY RAMOLA, M.D.,** Professor and HOD, Department of Community Medicine, Government Kilpauk Medical College Hospital, Chennai and submitted in partial fulfilment of the regulations for the award of the degree M.D.(Community Medicine) by The Tamil Nadu Dr. M.G.R. Medical University and the examination to be held in April 2017. This study was conducted at Peerkankarani, the Field Practice area of Government Kilpauk Medical College, Chennai. I have not submitted this dissertation previously to any university for the award of any degree or diploma.

Place: Chennai **(Dr. DHANALAKSHMI.S)**
Date:

DECLARATION

I, **Prof.Dr.K.MARY RAMOLA, M.D.,** Professor and HOD, Department of Community Medicine, Government Kilpauk Medical College Hospital, Chennai declare that this dissertation, entitled **"A CROSS SECTIONAL STUDY ONTHE PREVALENCE OF ACUTE AND CHRONIC MALNUTRITION AND ITS DETERMINANTS AMONG 6 MONTHS TO 2 YEARS CHILDREN IN RURAL AREA, TAMIL NADU",** has been prepared under my expert guidance and supervision by **Dr.DHANALAKSHMI .S,** for her partial fulfilment of the regulations for the award of the degree M.D.(Community Medicine) by The Tamil Nadu Dr. M.G.R. Medical University and the examination to be held in April 2017.

Place: Chennai
Date :

Prof.Dr.K.Mary Ramola,MD.,
Guide
Professor & HOD,
Department of Community Medicine,
Govt. Kilpauk Medical College,
Chennai -10.

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I thank my husband and parents and God Almighty for their blessings in successfully completing the study.

INSTITUTIONAL ETHICAL COMMITTEE CLEARANCE CERTIFICATE

INSTITUTIONAL ETHICS COMMITTEE
GOVT.KILPAUK MEDICAL COLLEGE,
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Protocol ID. No. 7/2016 Dt: 04.04.2016
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The Institutional Ethical Committee of Govt. Kilpauk Medical College, Chennai reviewed and discussed the application for approval " **a cross sectional study on the prevalence of acute and chronic malnutrition and its determinants among 6 months to 2 years children rural area, Tamil Nadu** " - For Project Work submitted by **Dr.S.Dhanalakshmi**, PG Community Medicine, Govt. Kilpauk Medical College, Chennai – 10.

The Proposal is APPROVED.

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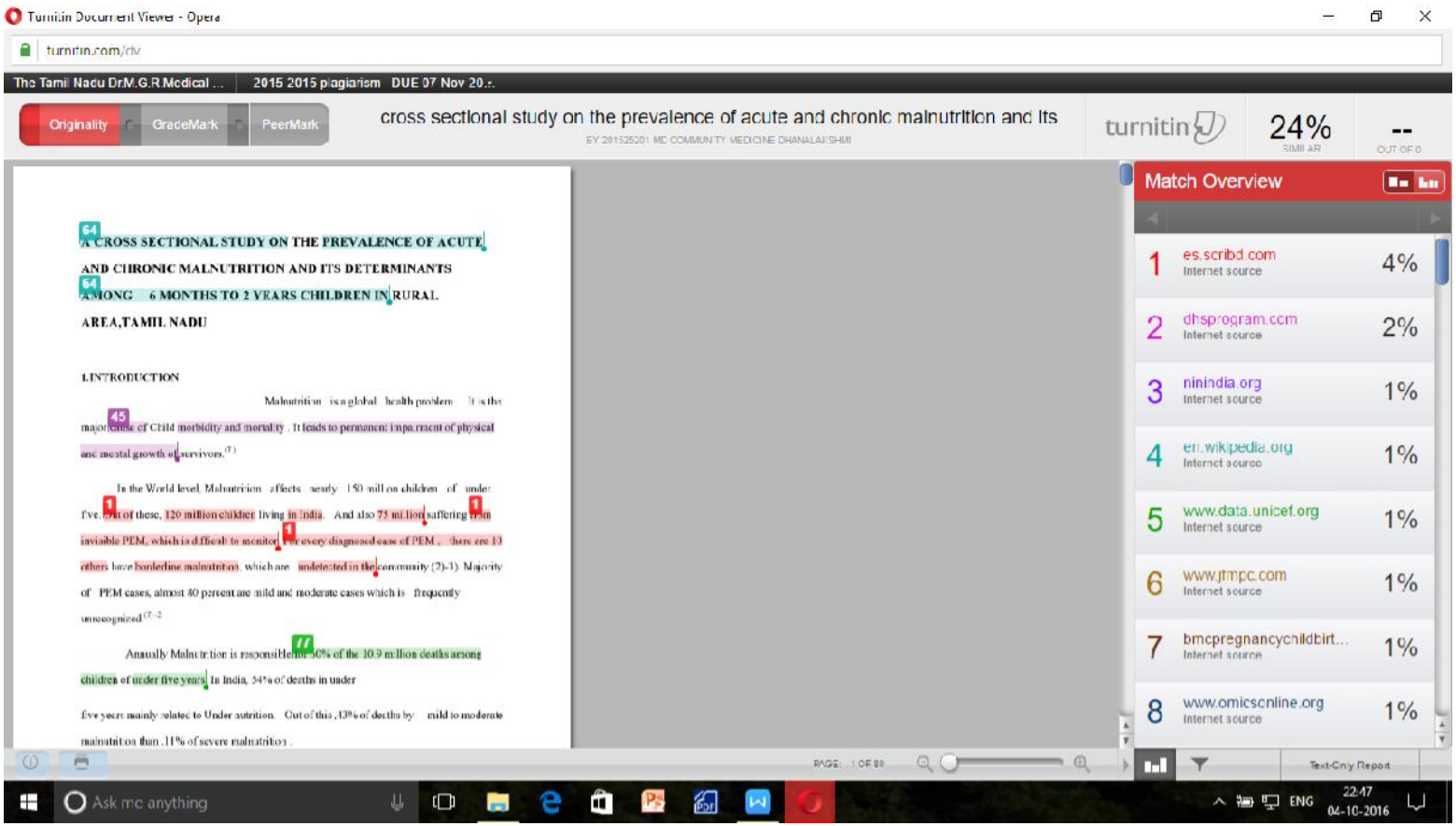
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INTRODUCTION
Malnutrition is a global health problem It is the
major cause of Child morbidity and mortality . It leads to permanent impairment of physical
and mental growth of survivors.(7)
In the World level, Malnutrition affects nearly 150 million children of under
five. Out of these, 120 million children living in India. And also 75 million suffering from
invisible PEM, which is difficult to monitor. For every diagnosed case of PEM , there are 10
others have borderline malnutrition, which are undetected in the community (2)-1) Majority
of PEM cases, almost 80 percent are mild and moderate cases which is frequently
unrecognized (7 -2
Annually Malnutrition is responsible for 50% of the 10.9 million deaths among
children of under five years. In India, 54% of deaths in under
five years mainly related to Under nutrition. Out of this ,13% of deaths by mild to moderate
malnutrition than ,11% of severe malnutrition .
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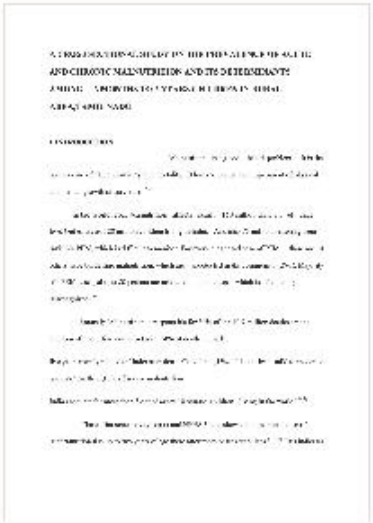

LIST OF ABBREVIATIONS

PEM - PROTEIN ENERGY MALNUTRITION

SAM - SEVERE ACUTE MALNUTRITION

DALY - DISABILITY ADJUSTED LIFE YEARS

SES - SOCIO ECONOMIC STATUS

MRSI - MARKETING RESEARCH SOCIETY OF INDIA

NFHS - NATIONAL FAMILY HEALTH SURVEY

DLHS - DISTRICT LEVEL HEALTH SURVEY

DHS - DISTRICT HEALTH SOCIETY

SDG - SUSTAINED DEVELOPMENTAL GOALS

UNICEF - UNITED CHILDREN EMERGENCY FUND

WHO - WRLD HEALTH ORGANISATION

WHA - WORLD HEALTH ASSEMBLY

ICDS - INTEGRATED CHILD DEVELOPMENT SCHEME

GDP - GROSS DOMESTIC PRODUCT

MDG - MILLENIUM DEVELOPMENTAL GOALS

SAARC - SOUTH ASIAN ASSOCIATION FOR REGIONAL COOPERATION

EBF - EXCLUSIVE BREAST FEEDING

NNMB - NATIONAL NUTRITIONAL MONITORING BUREAU

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VI	MASTER CHART
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INTRODUCTION

Malnutrition is a global health problem. It is the major cause of Child morbidity and mortality. It leads to permanent impairment of physical and mental growth of survivors.(1)

In the World level, Malnutrition affects nearly 150 million children of under five. Out of these, 120 million children living in India. And also 75 million suffering from invisible PEM, which is difficult to monitor. Majority of PEM cases, almost 80 percent are mild and moderate cases which is frequently unrecognized.(1) For every diagnosed case of PEM, there are 10 others have borderline malnutrition, which are undetected in the community.(2) Annually Malnutrition is responsible for 60% of the 10.9 million deaths among children of under five years. In India, 54% of deaths in under five years mainly related to Under nutrition. Out of this, 43% of deaths by mild to moderate malnutrition than, 11% of severe malnutrition .India accounts for more than 3 out of every 10 stunted children living in the world.(3)

The earlier state survey report and NFHS 3 data shows that the prevalence of undernutrition rise up to two years of age there after more or less stabilizes.(4) This indicates that the first two years of life in children is most critical period, so that the preventive actions for undernutrition must be taken in

this age group. Undernutrition is substantially higher in rural than in urban areas (fact sheet)[4]

The status of nutrition in the children can be evaluated by their growth. Under nutrition is one form of malnutrition, measured by anthropometric indicators like low height for age (stunting), low weight for height (wasting), low weight for age (underweight). Stunting associated with chronic malnutrition, Wasting with current /acute nutritional status. The Underweight (low weight for age) representing both the acute and chronic malnutrition[5]. More than one third of the world's children who are wasted live in India.[6]

Over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occurs mostly in the first year of life.[6]

This study is planned to be conducted in rural field practice area attached with Government Kilpauk Medical College which studies as magnitude of the prevalence of Acute Malnutrition and Chronic Malnutrition and its determinants among 6 months to 2 years aged children.

JUSTIFICATION

NEED FOR THE STUDY

In Developing countries like India, several epidemiological studies to assess the prevalence of malnutrition are needed for determining the baseline against which the future trends in risk factors can be assessed and therefore preventive measures can be planned. Tamil Nadu is a high populated state with Chennai as its capital. The Prevalence of Malnutrition is two folds higher among Rural area compared with Urban area. Malnutrition is the cause of childhood mortality and morbidity mainly children belongs to 6 months to two years. We were interested to investigate the prevalence of acute and chronic malnutrition along with its determinants separately and various screening measures like anthropometric measurements (like Weight for age, Height for age, Weight for height, Mid arm circumference) among 6 months to 2 years children.[7] Our aim here is to estimate the prevalence of under nutrition among 6 months to two years of children. The Anthropometric indicators like Wasting indicator of acute malnutrition, Stunting indicator of chronic malnutrition, underweight indicator of both acute and chronic malnutrition[8] .

Nutritional status is the complex interactions of food consumption and the status of health and health care practices[9]. Children affected by acute and chronic malnutrition are highly unlikely to reach their full educational and productive potential life, especially if these conditions are present under the two

years of age. This affects both the individuals and also their countries long-term economic growth and development.[10]

Appropriate and adequate food for feeding is a pre-requisite to good nutritional status throughout the human life because of nutritionally inadequate diet consumption leads to malnutrition[9]. Proper nutrition in the first few years of life is usually determined by feeding practices.

A faulty feeding practices like delay in the initiation of breast feeding, discarding the colostrum and introducing inappropriate, inadequate complementary feeding had significant association with underweight and stunting.[11]

The feeding practices has an major role in combating undernutrition with hidden cultural values and beliefs.[12] Optimal breastfeeding and complementary feeding practices are most important contributors to nutritional status and child survival in the children's first two years of life.

The Lancet Maternal and Child undernutrition Series has been reported that" sub-optimal breastfeeding practices are responsible for more than a million child deaths and 44 million disability-adjusted life years (DALYs), which account for 10% of DALYs in children of under five years about half of this level of mortality among children in under five could be averted by improving feeding practices."[12]

This indicates that the first two years of life in children is most critical period, so that the preventive actions for undernutrition must be taken in this age group.

There is steep increase in prevalence of underweight in young children from 27% around 6 months age to 45% at 24 months of age. This mainly due to faulty Infant and young child feeding practices among the community.[13]

GLOBAL SCENARIO

Globally, 165 million under five children, or 26 percent were stunted in 2011. In Africa and Asia, more than 90 percent of the world's stunted children live. High prevalence (36% in 2011) in Africa and (27% in 2011) in Asia remain a public health problem, often which goes unrecognized[14].

Overall progress was insufficient and also millions of children remain at risk[14]. Globally 52 million Underfive children, or 8 percent were wasted in 2011. In Asia, mostly in south-central Asia, 70% of the World's wasted children live. Prevalence of overweight lower in Asia[14].

According to Global nutrition report 2015,161 million of under 5 children are stunted (too short for their age) 51 million are wasted (not weight enough for their height, (UNICEF/WHO/World Bank 2015) (Sustainable Development Goal (SDG) Target 2b is "by 2030, end all forms of malnutrition." The proposed SDG indicator set includes links to World Health Assembly (WHA) global nutrition targets.[15]

Globally, stunting as a key indicator of nutrition status, in 2012 the World Health Assembly (WHA), endorsed a 40 per cent reduction in the number of stunted children as a global nutrition target for the year of 2025.(16)The

importance of the first 1,000 days is - sensitive interventions period to address undernutrition.[16]

INDIAN SCENARIO

Based on the NFHS-3 Report, the percentage of under three years children who are stunted 47.2% in rural area, compared with urban it is 37.4% .

Under weight among under 3 years children in rural 43% compared with 30.1%in urban. Wasting among the under three years children, 24.1%, it is 19% in urban.[17]

Prevalence of underweight in India in under five children is 48 percent .it is twice the average prevalence sub-saharan Africa Bangladesh and Nepal. Even though the efforts of integrated child development services (ICDS) to improve nutritional status of young children, there is not much of improvement in the under three years children in recent years.[18]

In India, Nutritional deficiencies are evident from birth, stunting and underweight rapidly rise in first two years of life. From 0 to 20 months of age, the proportion of stunted children at 59% after that it fluctuates between 48% and 60%. The proportion of underweight for the first 20 months of age is 47% after that fluctuates. The proportion of wasting rises from 24% in the first month of life to 32% at one month of life and declines thereafter.[18]

In rural areas, half of children in young age are stunted, half of them are underweight, one out of five children is wasted. In Rural, 40% are underweight than in urban .the prevalence of stunting is 28% higher in rural than in urban.[18]

As per the Rapid survey on children 2013-2014 INDIA Fact sheet conducted by ministry of women and child development, Government of India. Rural percentage of stunted children in the age of 0-59 months is 41.6%, compared with 32%in urban. Severely wasted 19.1% living in rural area, 13.2 in urban area. Wasted 15.1% in rural.15%in urban.4.5% in rural severly wasted,in urban 4.8% .in rural 31.6% are under weight compared with urban 24.3%.severly underweight in rural 10.6%,compared with 6.9% in urban area[19]

Tamil nadu scenario as per the NFHS-4(2015-2016), stunted children in Under five age living in the rural area was 28.6%, as compared to 30.9% in NFHS-3. Under five wasted children living in rural area, 20.3%, 22.3% in NFHS-2 respectively. Of this 7.6 % are severely wasted then 25.7% of the underweight in rural area, as compared with 29.8% in NFHS -3.[20]

IMPACT OF MALNUTRITION

Because of Undernutrition the child is susceptible to infection that complements its effect in contributing to mortality among the children. In India, 22% of disease burden contributed by malnutrition. It has an adverse affects on

economic growth of the country with an adult productivity loss of 1.4% of gross domestic product (GDP). [21]

IMPACT OF FEEDING PRACTICES TOWARDS MALNUTRITION

As noted earlier, the Optimal breastfeeding and complementary feeding practices plays an important contribution to nutritional status and child survival in the first two years of life. The Lancet Maternal and Child Undernutrition Series has been reported that sub-optimal breastfeeding practices are responsible for more than a million child deaths and 44 million disability-adjusted life years (DALYs), which account for 10 percent of DALYs in children of under five years . About half of this level of mortality among children in under five could be averted by improving the feeding practices.[12]

Malnutrition slows economic growth and perpetuates poverty. Mortality and morbidity associated with malnutrition measures a direct loss in human capital and productivity. At a microeconomic level, it is 1 percent loss in adult height as a result of childhood stunting equals to a 1.4 percent loss in productivity of the individual.[22]

Wasted children have a 5-20 times higher risk of dying from common diseases like diarrhoea or pneumonia than normally nourished children.

OBJECTIVES

1. Nutritional status assessment of 6 months to 2 years aged children in terms of acute and chronic malnutrition.
2. To assess the determinants of acute and chronic malnutrition among mothers of 6 months to 2 years children.

REVIEW OF LITERATURE

This section reviews definitions, classification of malnutrition and also various surveys to assess nutritional status of children, like NFHS, DLHS, NNMB SURVEY and also reviews with previous research addressing the nutritional status of children and various factors determining the malnutrition status of children. This information is required to identify and address the issues for improving the health and overall nutritional status of these children.

DEFINITION

The World Health Organization (WHO) defines Malnutrition as "the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance, and specific functions."[23]. It is presents in four forms 1.Under nutrition 2.Over nutrition 3.Imbalance 4.Specific deficiency commonly the term malnutrition is mainly used to refer to undernutrition only. [24]

1. Under nutrition (WHO) : It is a condition which results from insufficient food is eaten over an extended period of time .In extreme cases ,it is called as Starvation.[8]

2. Over nutrition (WHO) : This is an pathological state that resulting from the consumption of excessive quantity of food over an extended period of time.[8]

3. Imbalance : (WHO) : “This is the pathological state resulting from a disproportion among essential nutrients with or without absolute deficiency of any nutrient.”

4. Specific deficiency :

   It is resulting from a relative or absolute lack of an individual nutrient.[25]

   In this study we deal with undernutrition only.

WHO (1973) has defined PEM as a “range of pathological conditions arising from coincident lack ,in varying proportions of protein and calories, occurring most frequently in infants and young children and commonly associated with infections.”[2]

SPECTRUM OF PEM

PEM varies from severe to mild form (WHO/UNICEF) Kwashiorkor, Marasmus, Marasmic kwashiorkor are the severe forms[26].

A. Kwashiorkor: mainly attributes to protein deficiency. It has a triad of growth retardation, oedema and mental changes.

B. Marasmic : child have severe wasting, old man appearance but they are alert with good appetite but the child is irritable.

C. Marasmic Kwashiorkor : is a child who have marasmus with oedema.

D. Pre kwashiorkor: children have a poor nutritional status with some kwashiorkor features hair changes and moon face and hepatomegaly but they do not have a feature of oedema.

E. Nutritional dwarfing :feature of stunting without wasting and without features of Kwashiorkor or Marasmus. They mainly by due to Micronutrient deficiency.

F. Underweight : 60-80% of the expected value of weight for age but not having any features of marasmus or kwashiorkor

G. Invisible PEM :

It has been reported that "the average moderately malnourished child in the 6-24 months age looks entirely normal, but is too small for age, has lowered resistance to infection and therefore easily succumbs to illness.''

CLASSIFICATION OF MALNUTRITION BASED ON

Etiological classification: Primary malnutrition mainly caused by lack of food and Secondary malnutrition caused by chronic disease.

Another CLASSIFICATION BASED ON ANTHROPOMETRIC MEASUREMENTS

Classification based on Anthropometric measurements

A. Classification based on weight for age

Weight for age is the most common anthropometric parameter used to classify the malnutrition among the children. Below said the classifications are based on the weight for age. Gomez's classification, Jelliffe's, Welcome Trust or International classification and Indian Academy of Pediatrics (IAP) Classification.

B. Classification according to Height for age:

It is used to grade stunting actually it indicates chronic malnutrition .so, Based on this parameter, Waterlaw and Mc Laren's classification is done.

C. Classification according to Weight for height

It is used to grade wasting. It is an indicator of recent or acute malnutrition. Waterlaw and Mc Laren's classification is done by using weight for height.

D. WHO cut-off assessment of Malnutrition

It mainly used for the assessment malnutrition in the Community studies .

E. Z Score : it mainly used in population study [8]

Z score is used in studies in population .percentage of the median is calculated first to interpret data at population level, then Z score is calculated. SD/Z score = measured individual value –reference median / SD of the reference median)

In our study, we using commonly practised WHO cut -off standard classification only.

WHO cut-off for assessment of malnutrition :[7][8]

"The WHO cut–off is used to estimate malnutrition in communities, this is based on mean value minus two standard deviations (SD) in the WHO growth chart . This method is mainly used to distinguishes between wasting by acute malnutrition and stunting caused by chronic malnutrition, by using weight for height and height for age respectively."

Below which we discuss about the Interpretation of malnutrition by using WHO cut-off for assessment.

WHO cut offs & Interpretation of Malnutrition

CUT OFF	WFA	HFA	WFH
Between -1 to +1 SD	Normal	Normal	Normal
Between -1 to -2 SD	Mild underweight	Mild stunting	Mild wasting
Between -2 to -3 SD	Moderate UW	Moderate Stunting	Moderate Wasting
Below -3 SD	Severe UW	Severe stunting	Severe wasting

MODERATE AND SEVERE ACUTE MALNUTRITION (MAM & SAM) (based on WHO. Guideline)

Features	MAM (moderate malnutrition)	SAM (severe malnutrition)
Oedema	No	Yes
Weight –for –height	70-79% or < -2 Z score	< 70% or < -3 Z score
MUAC (6-60 months)	11.5-13.5 cm	< 11.5 cm

Updates on the management of severe acute malnutrition in infants and children. Geneva: World Health Organization; 2013.)

MAGNITUDE OF MALNUTRITION

Prevalence of Undernutrition gradually increases from 6 months to 2 years age. Undernutrition status of children in the first years of life leads directly to structural damage of the brain and development of motor system. When the Children undernourished before two years of age they have chance of developing chronic disease in latter adult age.[27]

GLOBAL PREVALENCE DATA (UNICEF)[28]

UNICEF Data: Monitoring the Situation of Children and Women - Updated on Jun 2016: Undernutrition contributes to nearly half of all deaths in Children of under five years and it is mainly widespread in Asia and Africa In the world level on 2014, 159 millions of children affected by stunting (23.8% , or under one in four children in the under age 5 age group affected by stunted growth, that means chronic malnutrition.

Globally in 2014, 50 million of under 5 children were wasted and 16 million were severely wasted. This means that the prevalence of wasting (acute malnutrition) is 8 per cent and severe wasting is just less than 3%. But one main problem noted here is our Asia affected more, almost all wasted children 69% lived in Asia in Africa only, 29 per cent with similar proportions for severely wasted children. Severe wasting of 14.9 per cent, in South Asia's is close to beginning stage of a 'critical' public health problem;

In global level, West and Central Africa represents a 'serious' need for intervention for nutrition with appropriate programme.

(UNICEF -WHO-WORLD BANK joint Group estimates also states that, in the World level in 2014, 159 million children are affected by stunting .and also 50 million children lives with wasting.[29]

GLOBALLY CHANGING TREND IN MALNUTRITION[30]

Change between 1990 and 2014 in under five children Between 1990 and 2014, stunting rate, (chronic malnutrition) prevalence declined from 39.6 per cent to 23.8 per cent, and the number of children affected decrease from 255 million to 159 million. Worldwide, 95 million children under age 5 were underweight in 2014.

And also Underweight prevalence continues to decline, with a slow pace.

Between 1990 and 2014, it decreased from 25.0 % to 14.3 %

DOUBLE BURDEN OF MALNUTRITION[31]

WORLD HEALTH ORGANIZATION (WHO), reported about the serious consequences of malnutrition in all the regions of world, it causes double burden to the population in forms of undernutrition and also increasing prevalence overweight globally across the world, 156 million children are stunted (too short for age), 50 million children are wasted (too thin for height), 42 million of children under the age of 5 years have a problem of overweight.

GLOBAL HEALTH DATA[32]

WHO updated on 12.4.2016 about the prevalence of underweight (indicates both acute and chronic malnutrition) across various countries.

In India on 2005-06, in Afghan is than on 2004, the prevalence is 32.9%.43.5%, respectively near by countries like pakisthan on 2012 -13, 31.6%, china 2010, 3.4%, in Vietnam 2013 underweight rate is 12.1% ,in 2014, report of Bangaladash states that 32.6%, south Africa 2003-2004, 11.6%.

PREVALENCE OF MALNUTRITION IN INDIA

IN INDIA, various surveys reported about the nutritional status like NFHS (NATIONAL FAMILY HEALTH SURVEY), DLHS (DISTRICT LEVEL HOUSEHOLD SURVEY), AND NNMB (NATIONAL NUTRITION MONITORING BUREAU) SURVEY.

We will review shortly about these surveys report briefly below.

NNMB SURVEY (2005-2006)

This survey was conducted by NATIONAL INSTITUTE OF NUTRITION, HYDERABAD .

Based on this report, Anthropometric indicators (based on WHO STANDARD CHILD GROWTH CHART< MEDIAN - 2 SD of cut-off value) states that in under five children the prevalence of underweight was 42.6%, stunting rate was 48.7%, and wasting 20%. And also the prevalence of Kwashiorkor / Marasmus was <1% this survey also reports that there is steep increase in prevalence of underweight among young children , from 27% around 6 months of age to 45% at 24 months age.[13]

NATIONAL FAMILY HEALTH SURVEY (NFHS)

NFHS done by ministry of health and family welfare, government of India, international institute of population, Mumbai this survey reports that based on NFHS –III (2005-2006), for under five children, Almost half of children (48%) are chronically malnourished (stunting). 20% of children are wasted (acute malnutrition) 43% of children are underweight.[17]

Trends in Malnutrition among under three years children in INDIA.

Based on NFHS –II (1998-99) survey, in under three years children 51% were from Stunted, 20% wasted, 43% underweight. Based on NFHS-III, in under three years age 45% were affected from stunting, 23% wasting, 40% were underweight.

DISTRICT LEVEL HOUSE HOLD SURVEY (DLHS) FOR TAMIL NADU [33]

Based on DLHS-4 (2012-2013), in Tamil Nadu among under five children and comparing with rural -urban difference .

Nutritional status indicator	Total (%)	Rural(%)	Urban(%)
Wasting	28.3	29	27.3
Severe wasting	13.9	14.5	13.1
Stunting	27.3	30.1	23.7
Severe stunting	11.8	13.3	9.9
Under weight			
< -3 SD	32.5	35.1	29.2

>-3 SD	10.7	12.3	8.8

MDG (MILLENIUM DEVELOPMENT GOALS)

In MDG Goal of 1, Target 2 and indicator 4 reports that, the Prevalence of underweight in children of underfive years has modified as 'prevalence of underweight children under 3 years of age' as per the available Comparative data at national level.(34)

(The State of The World's Children 2016. A fair chance for every child UNICEF 70 years for every child) Compared to richest child, the poorest child have 1.9 times a risk of death in under five years.

GLOBAL PREVALENCE OF UNDERNUTRITION

Nguyen Ngoc Hien et al done a study in vietnam with sample size of 193 under five children, they found out (31.8%) were underweight, 269 (44.3%) were stunting and 72 (11.9%) were wasting in the under five childrens.(35)

Asfaw et al in Blue Hora dist, South Ethiopia, reported the prevalence of undernutrition in the form of stunting, underweight, and wasting were 47.6%,29.1% and 13.4%respectively prevalence of severe stunting, underweight and wasting among the children were 20.2%, 6% and 3.9% respectively.(36)

PREVALENCE OF NUTRITIONAL STATUS IN INDIA

From Various studies the prevalence of malnutrition (in the form of wasting, Stunting, Underweight) distributed in the range from 29.2% to 63%).

- Tulsi Adhikari done a study based on the raw data of second (1998-99) and third round of National family health survey (NFHS)

(2005-20006) are used for comparing the prevalence of undernutrition in children. The prevalence rate of underweight in India is 38.7%,with severe cases 14.9%, the prevalence of underweight has increased from 37.2% in NFHS2(1998-99) to 38.7% during the NFHS 3(2005-2006).The month –wise underweight prevalence continue to increase in the first 24 months .after that it is around 40%. STUNTING prevalence rate increases with increase in age and the prevalence rate highest in two years of age. Stunting among under two years is decrease from 49.5% in 1998-1999 to 40.2% in 2005-2006.[37]

- Sanjeev Daevy done a cross sectional study in Delhi ,ICDS on 2005, 'Factors influencing status of undernutrition among children (0-5 years) in a rural area of Delhi:' undernutrition prevalence among 6 months to 1 year is 52.9%,undernutrition among 1-3 years is 69.6%.(38)

- Stalein P et al done a study on 2012 in Rural area of Kancheepuram District among 563 under five children, in this study The prevalence of underweight among the children of under one year of age was 62.4%.in this they used IAP classification for Grading nutritional status. The prevalence of underweight among infants was 62.4% which was the highest as compared to other age groups more malnourished (63.4%)[39]

- Dinesh Kumar et al, done a study in chandigarh, under five children, 36.4% underweight (<2SD weight- for –age), 51.6% stunted (<2SD height- for- age), and 10.6% wasted (<2SD weight- for- height) Proportions of underweight (45.5%) and stunting (81.8%) maximally were found among children aged 13 to 24 months. Wasting was most prevalent (18.2%) among children aged 37-48 months.[40]

ANTHROPOMETRIC MEASUREMNTS ON THE NUTRITIONAL STATUS ASSESSEMT

Growth assessment is an important measures to serve for evaluating the health and nutritional status of children, it mainly indicates an indirect measurement of the quality of life of an entire population,

Anthropometric assessment is an important tool for measuring and monitoring the Nutritional status of children. There are three commonly used measures for detecting malnutrition in children: Stunting (extremely low height for age), wasting (extremely low weight for height) underweight (extremely low weight for age).[83]

Underweight status is a composite index of chronic or Acute malnutrition.

Underweight is often used as a basic indicator of the status of a population's health.

1. Based on the WHO standard Growth Chart, "A stunted child has a height-for-age, z-score that is at least 2 standard deviations (SD) below the median for the WHO Child Growth Standards. Chronic malnutrition is an indicator

of linear growth retardation that results from failure to receive adequate nutrition over a long period and may be exacerbated by recurrent and chronic illness."

2. "A Wasted child has a weight-for-height z-score that is at least 2 SD below the median for the WHO Child Growth Standards. Wasting represents a recent failure to receive adequate nutrition and may be affected by recent episodes of diarrhoea and other acute illnesses."

3. "An underweight child has a weight-for-age z-score that is at least 2 SD below the median for the WHO Child Growth Standards. This condition can result from either chronic or acute malnutrition, or both."

WHO Recommendation for Management of Severe Acute Malnutrition (SAM).[(42)]

Diagnosis of SAM should based on Any one of the following conditions.

1. Wt for Ht < 70% of the expected or < 3z score
2. Visible wasting with MUAC <11.5 cm
3. Oedema –B/L pitting oedema
4. MUAC < 11.5 cm in 6-60 months old
5. MUAC < 11 cm if length <66 cm Another term for SAM –severe childhood undernutrition (SCU)

DETERMINANTS OF MALNUTRITION

Malnutrition in under two years children depends on various factors like Socio demographic profiles, low birth weight, feeding practices etc.

In this review we deal with various determinants of malnutrition among various studies.

SOCIO DEMOGRAPHIC FACTORS

Age and gender of the children

Malnutrition was more prevalent in the age group of 1-2 years.[43] The prevalence of underweight grossly increased from 11.9% (<6 months) to 37.5% (6-11months) to 58.5% among 12-23 months old children. These variations are mainly due to changing dietary pattern with increasing age, plays an important role in nutrition.

Stalein P et al stated that Female children (62.6%) were more malnourished than males (44.0%).[39]

National Family Health Survey II (NFHS II) reported an prevalence of underweight was 48.9% among girls compared with boys (45.5%).

Rural –urban difference In rural areas, half of children in young age are stunted, half are underweight, one out of five children is wasted. In Rural, 40% are underweight than in urban the prevalence of stunting is 28% higher in rural than in urban.[44]

Khan et al done a study in Bangladesh in 2009 reported that rates of malnutrition were higher in female children than male children.[45] Other studies shows that, at the national level, differences between undernutrition prevalence

rates between young boys and girls are generally small. Girls often have a lower nutritional status in South and South eastern Asia compared to boys. In other developing regions, the nutritional status of girls is slightly higher.[46] another main important reason for malnutrition is Economic statusof the family.

Economic status have an major role in malnutrition. Poverty plays an important role in food distribution and availability .It is an vicious cycle, because of poverty not able met the nutritional needs and nutritional deficit leads to poor productivity.[27]

Stalein P et al states that Children belonging to lower Socio-economic status (47.2%) were more malnourished than high socioeconomic status (40.0%)

Maternal malnutrition leads to give birth of low birth weight babies, as when they grown up with compromised feeding ,they easily prone for infections, that also contributes stunting of children, it may continue to adolescent life ,again it cause maternal malnutrition when they entered in to the marriage life[47]

DETERMINATS RELATED TO MOTHER

Age of the mother

AM Shamsir Ahmed et al, submit the report of nutritional status of under two years children living in rural area of bangaladesh based on the data of the National Nutrition Program baseline survey conducted in 2004 in which 8,885 under-two children and their mothers were included . more likely to have

older- (>30 years) older age mother more likely to have malnourished children.[48]

Maternal Education status :

A decreasing trend in all forms of undernutrition is observed where the literacy status of mother increased.[49] Children of illiterate women have Twice a time risk of delivering an undernourished children than those finished their high school.

Increasing female literacy has a positive role in preventing undernutrition. literate mother is at a better position in the family to take care of her child.

Indrapal Ishwarji Meshram MD, et al done a study on the Trends in the Prevalence of Undernutrition among 14,587 under five children in tribal area, India that the risk of underweight and stunting was significantly ($p<0.01$) higher, is associated with among literacy status of mothers, household wealth index morbidities. Employed mother have a difficulty to take care of their children .and they don't have a enough time to spend with the children.[50]

Regular antenatal visit and full course of IFA tablet during the pregnancy period.

When mothers completed their regular antenatal checkup and regular IFA tablet may reduce the malnutrition and anemia among both mother and children.

Dewan et al in 2008, done a study and states that Nutritional status and conditions of anemia in the pregnancy period and also Adolescent period are

the main underlying and contributory factor for the birth of babies with low birth weight.[51]

Type of delivery : Amy j.Hobbs et al said that Women who delivered her baby by emergency c-section had a higher proportion of breastfeeding difficulties (41%), and also they spend more resources before (67%) and after (58%) leaving the hospital.[52]

S.O.Rutstein reported neonatal and infant mortality decreases with birth interval of 36 months the analysus of this study reported that 48 months of birth interval is ideal reduce childmortality due to malnutrition of children .this study concludes that optimal birth interval is 36 months to 59 months.[53]

CHILD RELATED FACTORS

***** Low birth

In M.Shafiqur Rahman etal study reports that the prevalence of malnutrition was markedly higher in children with LBW than those with Normal birth weights (stunting : 51% vs 39%; wasting : 25% vs 14% and underweight: 52%, 33%).(54)

Timing of delivery also important on nutritional status ,pre term children More prone for undernutrition.

* immunization status of children determines the nutritional status of children

Saiprasad Bhavsar et al done a study in under 6 years children in ICDS center regarding the grading of malnutrition related with immunization status, in this study 59.8% children were malnourished and only 90 (46.4%) were completely immunized. It is evident that malnutrition closely related with nutritional status.

Chowdhury F1 et al done a retrospective case-control analysis study among 4075 children of 12-23 months in the year of 1994-2003, about the Malnutritional status and Measles vaccination status. In this study 51% of the children without measles immunization were stunted, 76% were underweight, and 48% were wasted. The non-immunized children were twice as likely to be stunted, underweight, and wasted than the immunized children not only measels other vaccines also most important in preventing role in

malnutrition. The Nutritional effects of measles are experienced by both malnourished and well-nourished child. The severe nutritional deficiency disorders like Kwashiorkor and marasmus precipitated in already malnourished children only. In the post measles period, 3-4% 0f children suffered from clinical nutritional syndromes.[55]

* Deworming

Awasthi S et al Done a randomized study in (2008) “about the Effects of Deworming on Malnourished Preschool Children in India.”

Globally, About one-third of children living in the poor communities are infected with intestinal worms infestation . they the “ studied the effects on the heights and weights of 3,935 children, initially 1 to 5 years of age, of five rounds of antihelminthic treatment (400 mg albendazole) administered every 6 months over 2 years.” Albendazole - treated children gain a greater weight.[56]

FEEDING PRACTICES

Feeding practices are the important factor contributes to malnutrition in the first two years of life based on the IYCF practices recommended by WHO Only “21 percent of 6-23 months aged children are fed according to all three quality parameters (timely, adequate and safe)’’[57].

WHO GUIDELINES OF INFANT AND YOUNG CHILD FEEDING PRACTICES ARE

"In Infants Breast-milk alone is not enough after 6 months of age. Complementary foods should be started after 6 months of age, along with breast-feeding. Low-cost home-made complementary foods can be administered. On demand feeding 3-4 times a day should be practised.

Add fruits and well cooked vegetables, rice ,dhal kanjiies. While preparing and feeding the complementary food hygienic practices should be followed.

On baby foods Read nutrition label carefully. If breast-feeding fails, the infant needs to be fed animal milk or commercial infant formula.

To start with, milk may be diluted with an equal volume of water. Full strength milk may be started from 4 weeks of age. While reconstituting the infant formula, the instructions given on the label should be strictly followed. The feeds should be prepared and given using a sterile cup, spoon, bottles and nipples taking utmost care. Overfeeding should be avoided in artificially-fed, infants to prevent obesity. Home-made, low cost complementary foods should be preferred. Common infections and malnutrition mainly contribute to child morbidity and mortality. During and after the episodes of infections a child needs to eat more to maintain good nutritional status.[12]

Hong Zhou PHD et al studied the relationship between child feeding practices and malnutrition in 7 remote and poor countries, P R China. Sample of

2201 and 1978 care givers were obtained that faculty infant feeding practices affects the nutritional status of child.[58]

Swati Mohan Gadappa1 et al reported The children who received complementary feeding at 9 months of age and beyond, developed 60% of severe acute malnutrition.[59]

HEALTH STATUS OF CHILDREN

Influence of feeding during illness Maternal and child undernutrition relation ship done by Victora et al, the analysis report that Even mild degrees of malnutrition double the risk of mortality for respiratory and diarrheal disease mortality and malaria. This risk is greatly increased in more severe cases of malnutrition.[27]

Musaiger, et al states in the study that other infections can cause malnutrition by decreased nutrient absorption, and decreased food, increased requirements of body and direct nutrient loss. Parasite infections, in particular intestinal worm infections (helminthiasis), can also lead to malnutrition.[60]

HYGIENIC PRACTICES

SAFE DRINKING WATER; repeated diarrhoea and intestinal worm infections as a result of inadequate sanitation.[61]

Prüss-Üstün, A. et al, 2008 done a study on “Safer water, better health – Costs, benefits and sustainability of interventions to protect and promote health” (WHO), Geneva, Switzerlandhe World Health Organisation estimated in 2008

that globally, half of all cases of undernutrition in children under five were caused by unsafe water, inadequate sanitation or insufficient hygiene.[62]

APPROACHES TO THE STUDY

Certain studies based on follow up from birth and also follow up from third trimester of pregnancy till one year age to assess the nutritional status.

Srinivasan vijayalakshmi et al[63] done a study on "Feeding Practices and Morbidity Pattern of Infants in a Rural Area of Puducherry-A Follow Up Study. Some of these studies have such a limitations such as regular follow –up is difficult in these type of studies. So that, we selected a cross sectional study to assess the nutritional status of children.''

MATERIALS AND METHODS

Study design

Cross sectional study

Study population

Children in the age group of 6 months - 2 years of age and their mothers.

Study period

March 2016 to August 2016

Protocol preparation : one month -March 2016

Ethical committee approval - April 2016 (first week)

Data collection - two months (April to May 2016)

Data entry and analysis -one month (June 2016)

Dissertation Write up - two months (July - August 2016

Sample size estimation:

Based on the study using NFHS-3 data, the Prevalence of Undernutrition in Under two years of children in the Rural area of India is 40%.[37]

With Z value of 1.96, at 95% confidence interval, and alpha error fixed at 5%, Allowable Error (absolute precision) 8%, the Sample size required was 144 study participants. Allowing 20% for (expected non response rate of 20%), the required sample size was estimated as 180 children of aged 6months to 2 years and their mothers or informants.

Sampling procedure:

The Rural field practice area of Peerkankaranai PHC taken for the study has 6 subcenters. Using Stratified Random Sampling method, from each HSC 30 Children of 6 months to 2 years aged are randomly selected by using Family Register maintained by Village Health Nurses as the Sampling Frame.

Study population

Study population comprised of families of Peerkankaranai (an Rural field practice area of Kilpauk Medical college. Children in the age group of 6 months - 2 years of age and their mothers, living in Peerkankaranai PHC constituted the Study population.

Inclusion Criteria :

Children in the Age group of 6 months to 2 years children

Exclusion criteria:

Children with major Congenital Anomalies like Cleft lip and Cleft palate, and others and Severe malnutrition due to Chronic Diseases.

DATA COLLECTION

After getting approval for the study from the Institutional Ethical Committee of KILPAUK MEDICAL COLLEGE, data collection was done during the months of May 2016 to July 2016.

Data collection was done only by the Principal Investigator.

A House–to–House visit was made in the Morning .The Objective of the study and the Benefits to the Children and family being examined were explained to Mothers or Informants and their Informed Consent was obtained.

The Children of 6 months to two years aged belongs to our study and their mothers brought to the Sub Center for the purpose of Anthropometric Measurements and Clinical Examinations of children.

SERVICE TO SUBJECTS

After collecting the information and doing the Physical examination and Anthropometric measurements of the Children aged 6months to 2 years, Health education regarding the feeding practices, importance of Breast feeding initiation within 4 hours, colostrum feeding, exclusive breastfeeding for 6 months, initiation of complementary feeding at the end of 6 months, educate about the type of complementary food to be given, importance of safe drinking water, Hygenic practices during feeding, Avoiding traditional practices for internal administration, Avoid Formula feeding and bottle feeding practices, importance of deworming every 6 months, Information

regarding completion of Immunization including Measels immunization to prevent malnutrition and its complications.

Children diagnosed as moderate malnutrition and severe Malnutrition should be reported to VHN(Village Health Nurses) for Extra and Special care regarding feeding and regular monitoring of Growth by measuring Weight also advised to VHN. Extra Supplementry food should be given by ICDS.

Children with SEVER ACUTE MALNUTRITION is referred to the Tertiary Health center like Medical College attached Government hospital. After discharged from the hospital regular follow up and extra food supplementation from the ICDS benefit should be given.

DATA COLLECTION INSTRUMENTS:

Using Pre tested structured survey Questionnaire (see annexure) which contains

A. Socio- Demographic information
B. Anthropometric measurements
C. Information regarding Determinants of Acute and chronic Malnutrition
D. Clinical examination:

A. Socio- Demographic information like

Age of children, Gender, Parental education and Occupation, Socioeconomic status, Total family members, Type of Family, Siblings Operational definition

Modified BG Prasad Socio economic Scale[29],[43],[64]

BG Prasad's scale is used to measures the socioeconomic status of both rural and urban community .It based on per capita monthly income of the family, widely used in India. Per capita monthly income is derived by dividing the Total monthly income of the family by Total members of family.

This scale is an income based ,therefore, has to be constantly updated

Based on the ALL INDIA AVERAGE CONSUMER PRICE INDEX JUNE 2016 IS – 277. This AICPI updated by labour bureau, ministry of labour and employment, government of India.[65]

SOCIAL CLASS	LATEST REVISION (RS/MONTH) PERCAPITA INCOME/MONTH
I - UPPER	6323 & above
II - UPPER MIDDLE	3161 TO 6322
III - MIDDLE	1897 TO 3160
IV - UPPER LOWER	948 TO 1896
V - LOWER	947 & below

SOCIAL CLASS	ORIGINAL CLASSIFICATION
I - UPPER	100 & above
II - UPPER MIDDLE	50 TO 99
III - MIDDLE	30TO 49
IV - UPPER LOWER	15 TO 29
V - LOWER	15 & below

AND MRSI SCALE FOR SOCIO ECONOMIC STATUS

Both MRSI scale and Modified BG Prasad scale (All India Consumer Price Index –June 2016) were used to assess the Socio economic status of the family .

MRSI SCALE (See ANNXEURE)

This Scale based on the Two variables, 1.Education of head of family 2.Number of consumer durables owned by the family.

Source : Imbrint com/research / The –New SES system - 3rd May 2011.pdf.[66]

B. Anthropometric measurements like Weight, Height, Mid-arm circumference, Head circumference, Chest circumference are taken to the Children.

The physical instruments used in this study included are infanto-meter, digital salter weighing machine, flexible measuring tape, Stethoscope. All these instruments and techniques were initially standardized during pilot study and were regularly caliberated throughout the period of data collection.

HEIGHTMEASUREMENT[2]

“Below the age of 2 years, a horizontal measuring rod or Infantometer is used. Height measured in lying posture is called Length. Length measurement needs two people. Shoes are removed and the child is placed on the back on a flat surface. One person, preferably the mother, maintains the top of the child’s head against the fixed vertical head board with the child’s eyes directed

upwards. The other person firmly presses the knees together and down so that it touches the heels when the feet are at right angle. Accuracy must be to the nearest 0.5 cm. Beyond the age of two years ,a vertical measuring rod or Anthropometery is used. Height for age indicates normal or stunted."

WEIGHT MEASUREMENT [(2)]

''It is measured using the Beam scale or Salter type scale with Pants in which the child is placed .The Beam should be Properly balanced and should move freely when at rest and The pointer should be at zero. The scale should be set on a flat Horizontal surface .The shoes should always be removed and Children should be weighed with as little clothing .Weight is either read directly or by balancing the beam, depending on the type of scale. The result should be read only after the beam reaches its balance point or the pointer becomes motionless. Occasionally, children are so restless that no balance can be reached. In such cases, double weighing is done. First the mother is weighed alone and then the mother is weighed holding her child and the difference is Computed. As accuracy is less satisfactory, this is used as a Last resort only. It is always preferable to record both the weights before doing subtraction. For older children ,the weight should be accurate to the nearest 500g and for smallchildren to 100g.Weight for age indicates normal or underweight.'

MID UPPER ARM CIRCUMFERENCE (MUAC)[(2)]

Between 6 months to 60 months, the arm circumference remains fairly constant. Measurement is performed on the left arm, midway between the acromion and the olecranon.

The measurement tape is held gently without pressing the soft tissues. The tape must be flexible and non-stretchable and unaffected by temperatures. The reading should be accurate to the nearest 0.1cm.

According to the WHO guidelines, Reading below 11.5cm indicates severe, PEM.12.5-13.5cm, moderate PEM. Above 13.5cm is normal. MUAC is a good test to identify children with risk of dying. But it is not suitable for continued growth monitoring it increases only very slowly during the 1-5 year period.

HEAD CIRCUMFERENCE[(2)]

"While measuring the Head circumference the maximum Occipito-frontal (OFC) is measured by placing the flexible, non-stretchable tape firmly over the most prominent region of the occiput and frontal crests. The measurement is taken accurate to the nearest 0.1 cm."

CHEST CIRCUMFERENCE [(2)]

"It is measured at the nipple and is related to OFC. In early Infancy, OFC is more than chest circumference and by 1 year of age both are equal and thereafter the Chest Circumference is more than OFC. In PEM, Chest circumference may continue to be less than OFC. OFC to Chest circumference ratio >1."

C. Information regarding Determinants of Acute and chronic Malnutrition

1. Low Birth Weight(WHO/UNICEF)

Low birth weight is a weight at birth of less than 2,500 g (up to and including 2,499g) irrespective of gestational age.

2. Fully Immunized (WHO)

Infants who received one dose of BCG, three doses each of OPV, DPT, and Hepatitis B vaccines, and one dose of measles vaccine before reaching one year of age.

3. Breast feeding (Definition of the WHO)

The child has received breast milk. (Direct from the Breast or Expressed)

4. Early Initiation of Breast Feeding (Definition of the WHO)

Initiation of Breast feeding within one hour of Birth.

5. Pre lacteal feeds (Definition of the WHO)

Whether the Baby has been given anything to drink before starting to Breast feed is labelled as PLF.

6. Colostrum (Definition of the WHO)

The Yellowish, sticky, Breast milk produced at the end of the pregnancy.

7. Exclusive Breast Feeding (Definition of the WHO)

The infant has received only Breast milk from his /her mother or a wet nurse or Expressed breast milk and no other Liquids or Solids with the

exception of drops or syrups consisting of Vitamins, Minerals supplementsor medicines.

8. Complementary Feeding (WHO/UNICEF)

The child has received both Breast milk and solid or semi-solid food. Introduction of Nutritionally adequate and safe Complementary (solids) foods other than Milk at six months together with continued breast feeding up to two years of age or beyond.

9. Infant Formula[67]

The U.S.Federal Food, Drug, and Cosmetic Act (FFDCA) defines infant formula as "a food which purports to be or is represented for special dietary use solely as a food for infants by reason of its simulation of human milk or its suitability as a complete or partial substitute for human milk".

10. Safe Drinking water (WHO and UNICEF)

Safe drinking water is water with microbial, chemical and physical characteristics that meet WHO guidelines or national standards on drinking water quality;

D. CLINICAL EXAMINATION:

Based on IMNCI guidelines THEN CHECK FOR FACILITY BASED INTEGRATED MANAGEMENT OF NEONATAL AND CHILDHOOD ILLNESS (F-IMNCI)[68]

Classification of the Nutritional status of 2 months to 5 years children based on the visible severe wasting , oedema of both feet, And measuring weight for age.

Clinical signs	**Classification of nutritional status**	**Colour coding**
Severe wasting Oedema of feet	Severe malnutrition	Pink
Weight for age < 3SD	Very low weight	Yellow
Weight for age >3SD	Not very low weight	Green

11. Malnutrition (UNICEF)

Malnutrition is a broad term commonly used as an alternative to undernutrition but technically it also refers to overnutrition .People are malnourished if their diet does not provide adequate calories and protein for growth and maintenance or they are unable to fully utilize the food they eat due to illness (undernutrition)

12. Undernutrition (UNICEF)

Undernutrition defined as the outcome of insufficient food intake and repeated infectious diseases.It includes being underweight for one's age ,too short for one's age(stunted),dangerously thin for one's height (wasted) and deficient in vitamins and minerals (micronutrient malnutrition)

13. Underweight (UNICEF)

Under-weight refers to low weight-for-age, when a child can be either thin or short for his/her age. This reflects a combination of chronic and acute malnutrition.

Moderate and severe - below minus two standard deviations from Median Weight for age of Reference population : Severe - below minus three standard deviations from Median Weight for age of Reference population. . (Based on WHO Growth Charts)

14. Wasting (UNICEF)

Wasting - Moderate and severe - below minus two standard deviations from median weight for height of reference population. (Based on WHO Growth Charts) Refers to a child who is too thin for his/her Height.

15. Stunting (UNICEF)

Stunting - Moderate and severe - below minus two standard deviations from median height for age of reference population.Refers to a child who is too short for his/her Age .

16. Acute malnutrition (UNICEF)

Anthropometric Definitions of Malnutrition Wasted: Wasted refers to low weight-for-height where a child is thin for his/her height but not necessarily short. Also known as acute malnutrition, this carries an immediate increased risk of morbidity and mortality.

17. Chronic malnutrition (UNICEF)

Stunted growth refers to low height-for-age, when a child is short for his/her age but not necessarily thin. Also known as chronic malnutrition, this carries long-term developmental risks.

18. Severe acute malnutrition (WHO)

Severe acute malnutrition is defined by a very low weight for height (below -3z scores of the median WHO growth standards), by visible severe wasting, or by the presence of nutritional oedema.

DATA ANALYSIS

The Data thus collected is entered as tables in micro soft excel sheet and Analysed using Version 23.of the Statistical Package for Social Sciences Software packages (SPSS)

All the categorical data like age, sex expressed as proportion. Chi-square test of independence was used to test the existence of significant association between level of malnutrition and selected risk factors. The significant variables (p-value< 0.05%) observed in Bivariate analysis were subsequently included in Multivariate analysis. A linear logistic regression analysis has been used for multivariate analysis .

RESULTS AND DISCUSSION

The present study was undertaken in the rural population of Peerkankaranai, the field practice area attached to the Department of Community medicine, Government Kilpauk Medical College, Chennai. The study was conducted to find out the prevalence of acute and chronic malnutrition and its determinants among children of 6 months to 2 years Children using pre-structured questionnaire. The results of the study are presented here.

SOCIO DEMOGRAPHIC CHARACTERISTICS :

In this study, as shown in Table 1,

Mean age of the children was 15.82 months . Almost two third of the children (61.2%) belonged to 12 months to 24 months age group . Sex distribution of the children were almost equal.

In The Table 1 this though was conducted in a rural area, only 11.1% were living as Joint family .Further, the family size of nuclear families were fairly big as only 76.1%, had family members ≤ 4 members when those coming from nuclear families were 88.9%..it implying larger family size of Nuclear family .

TABLE - 1

SOCIO-DEMOGRAPHIC CHARACTERISTICS

STUDY VARIABLE	N (%)
I. Age group in months	
≤ 12 months	70 (38.9)
>12 months	110(61.2)
II. Gender	
Male	93(51.7)
Female	87(48.3)
IV. Type of family	
Nuclear	160(88.9)
Joint	20(11.1)
V. Total family members	
≤ 4 members	137 (76.1)
>4 members	43(23.9)

SOCIO -ECONOMIC STATUS

In BG PRASAD socio-economic scale , per capita income of the family taken as criteria . 55% belongs to middle class .

Since, BG Prasad Scale uses per capita monthly income is a deciding parameter, which is not able to differentiate the categories. The information collected from the Informants of Children (Study Population) regarding Family Income Per Month was not reliable and the People were hesitate in revealing their true Income .

In our study table 2, shows according to MRSI scale, 30.6% belongs to upper middle class ,20% in upper class,17.2% in middle class.

MRSI (MARKETING RESEARCH SOCIETY OF INDIA) is a new system of socio-economic status classification used in this study. It is commonly used in Marketing Researches .This scale used for both Rural and Urban area .

In this scale, based on two variables, Education of Head of Family and Number of Consumer Durables owned by the Family . It is Scale had an strong correlation and also strong agreement with Modified KUPPUSWAMY SCALE .

On the hand MRSI Scale is based on the Educational Status of the Head of the Family similar to Modified Kuppuswamy Scale, but instead

of Family income, the variable included was total number of Durable Items in the Family .In this MRSI Scale occupation of the Head of the Family, is not take in to account. So that, it avoids many practical problems of enquiring about the Family Income.

TABLE - 2

SOCIO ECONOMIC STATUS

Socio economic status	**BG PRASAD N(%)**	**MRSI N (%)**
Upper	12 (6.7)	36 (20)
Upper middle	45 (25)	55 (30.6)
Middle	99 (55)	31 (17.2)
Upper lower	24 (13.3)	38 (21.2)
Lower	0 (0)	20 (11.1)

DISTRIBUTION OF NUTRITIONAL STATUS

TABLE 3. Discuss with classification of nutritional status Based on the WHO STANDARD GROWTH CHART.

The prevalence of undernutrition in this study was 31.6%.The weight for age (under weight) just tells about undernutrition status .It not says whether they had acute malnutrition and chronic malnutrition .

The weight for height reflects the acute shortage of weight as against given height.

Height for age reflects the chronic nutritional deficiency.

In this TABLE 3 shows the Prevalence of low weight for height (wasting was 15% and low height for age (stunting) was 45.6% .

In the Growth Chart we take < - 2 SD to - 3 SD from the Mean taken as moderate malnutrition and < - 3 SD is taken as Severe malnutrition .

Based on this in our study, Various studies were done among the under five children only limited studies are present to describe the nutritional status of under two years children .and also they are not differentiate as acute malnutrition and chronic malnutrition in their study .in my study I want to differentiate the prevalence of acute and chronic malnutrition separately so that only we can prevent the malnutrition in the earlier stage itself .

Table 3 shows the prevalence of under nutrition was 31.6% . the prevalence of wasting 45.6%.

The prevalence of stunting was in this study was 15%.

Wasting reflects the acute malnutrition ,stunting reflects the chronic malnutrition.

However, 35% were high weight for height, sometime, it reflects malnutrition occur in the weaning period, which has been overfeed in later days so that high risk of developing Non communicable disease .

TABLE - 3

DISTRIBUTION OF NUTRITIONAL STATUS

NUTRITIONAL STATUS		WT FOR AGE N (%)	HT FOR AGE N (%)	WT FOT HT N (%)
NORMAL		98 (54)	76 (42.2)	90 (50)
HIGH		25 (13.9)	22 (12.2)	63 (34.9)
L O W	moderate	40 (22.2)	39 (21.7)	23 (12.8)
	severe	17 (9.4)	43 (23.9)	4 (2.2)
	Total	57(31.6)	82 (45.6)	27(15)

- The prevalence of undernutrition (under weight) was 31.6%
- The prevalence of wasting (acute malnutrition) was 15%, 12.8% was moderate wasting , 2.2% was Severe wasting .
- The prevalence of stunting(chronic malnutrition) was 45.6% 21.7% was moderate stunting , 23.9 % was severe stunting

Prevalence of acute malnutrition (wasting) in our study 15% is near to the AM Shamsir et al study (18%) , and stunting in our study is 45.6% , Close to the AM Shamsir et al study ,in their study stunting prevalence is 41% and also in our study the prevalence of underweight is 31.6%, it also near by value of AM Shamsir et al study (35%).[48]

In our study 2.2% affected by severe wasting, 23.9% by severe stunting, 9.4% affected by severe under weight compared with AM Shamsir et al study Severe wasting similar to this study (3%), but severe stunting more than the value of this study (16%) severe underweight is less than this study (11.5%).

Another study done by Tulsi Adhikari etal based on the raw of NFHS 3 AND NFHS 2 and age wise trend analysis was done to find out the prevalence of undernutrition in under two years in rural area in their

study they reported under weight was 41.9% (NFHS -III) and stunting was 42.1%.

Compared with Tulsi Adhikari et al study, the under weight prevalence in our study is lower (31.6%) than this study but in our study stunting prevalence is Slightly higher (45.6%).[37]

ESTABLISHING ASSOCIATIONS WITH ACUTE AND CHRONIC MALNUTRITION

DISTRIBUTION OF PREVALENCE OF MALNUTRITION AMONG SOCIO DEMOGRAPHIC VARIABLES

Age group

Table 3 shows, 61.2% belongs to > 12 months age group, among this 19% affected by acute malnutrition and 51.8% affected by chronic malnutrition there is an statistically significant difference between these age groups <=12months &>12 months .>12 months age group children affected by both acute and chronic malnutrition.

Dinesh kumar, N.K.Goel, poonam, C.Mittal et al done a study among under five children in chandigarh in their study they find out prevalence of malutrition in underfive children are underweight is 36.4%, stunting is 51.6%, wasting is 10.6%, among this stunting was maximum (81.8%) in the age group of 13 -24 months wasting was maximam (18.2%) in 37-48 months compared with this study, in our study both stunting and wasting more in the > 12 months age group compared with <= 12 months.[40]

Gender Difference

In our study male children are more affected than female children among 51.7% of male child (11.83% are affected by acute malnutrition (55.91%) are affected by chronic malnutrition among 48.3% of female

TABLE - 3A

MALNUTRITION ACROSS SOCIO DEMOGRAPHIC VARIABLES.

Variables	Total number	Acute malnutrition		Chronic malnutrtion	
		N (%)	Pvalue	N (%)	Pvalue
I .Age groups in months					
<=12 months	70	6(8.5)	0.054 *	25(35.71)	
>12months	110	21(19.09)		57(51.82)	0.034*
II .Gender					
Male	93	11(11.83)	0.218	52(55.91)	0.004*
Female	87	16(18.39)		30(34.48)	
Iv. Type of family					
Nuclear	160	23(14.4)	0.507	74(46.3)	0.597
Joint	20	4(20.0)		8(40.0)	
V.total no of family memebers<					
< =4 members	137	23(14.6)	0.788	63(45.99)	0.836
>4 members	43	4(16.28)		19(44.19)	

* p-value significant

child, (18.39%) are affected by acute malnutrition and 34.48% affected by chronic malnutrition Male children are more affected by stunting (chronic malnutrition) than female children. It is statistically significant (p=value 0.004).

In this study population even though they had male children, they prefer female children. It was stranged to noted which several women says this, was encouraging trend in community.

Elham Kavosi et al, study reports support our study in their study also stunting was significantly associated with male children Salah E.O.Mahgoub et al done a study among 400 households of < 3 years children in four districts of Botswana in this study prevalence of wasting, stunting, underweight 5.5%, 38.7%, 15.6% respectively all the three types of malnutrition were more prevalent among the male children than female children.[69]

Q.D.Badake, I.mania et al done a study among underfive children in kenya also reports their study ,male child more affected than female child. Both these studies are similar to our study.[70]

Type of family

Table 3 shows No variations across whether they are small are big by the level of acute malnutrition and chronic malnutrition, lie closely around the overall value of 15% acute malnutrition, 45.6% were chronic malnutrition however statistical significant difference not obtained from the type of family, there was less chronic malnutrition in joint family 40%,compared to nuclear family (46%).

Anurag Srivastava etal done a study among urban slum india, in their study they states that risk of malnutrition in children living in joint families was significantly higher than nuclear family .in our study there is no significance may be majority of women in our study area was non working mothers.

Family size

In our study, 76.1% living in <= 4members ,among this 14.6% are acute malnutrition and 45.9% are chronic malnutrition .and 23.9% have > 4 members among these 16.28% are acute malnutrition and 44.19% are chronic malnutrition the acute malnutrition more in > 4 members family and chronic malnutrition more in <= 4 members family there is no significant difference in both acute and chronic malnutrition related with family members.

Elham Kavosi et al done a study during the period of December 2012 to January 2013 ,among 15,408 children in the age group of 0-6 years, in this study family size was significantly associated with underweight[72]

Economic status

Based on BG Prasad scale, 14.58% of the middle class had acute malnutrition.

The fig shows the contribution from the different SEC groups. This is commensurate with the fact that 80% of the study group belongs to middle class. The proportion with acute malnutrition were fairly similar across the

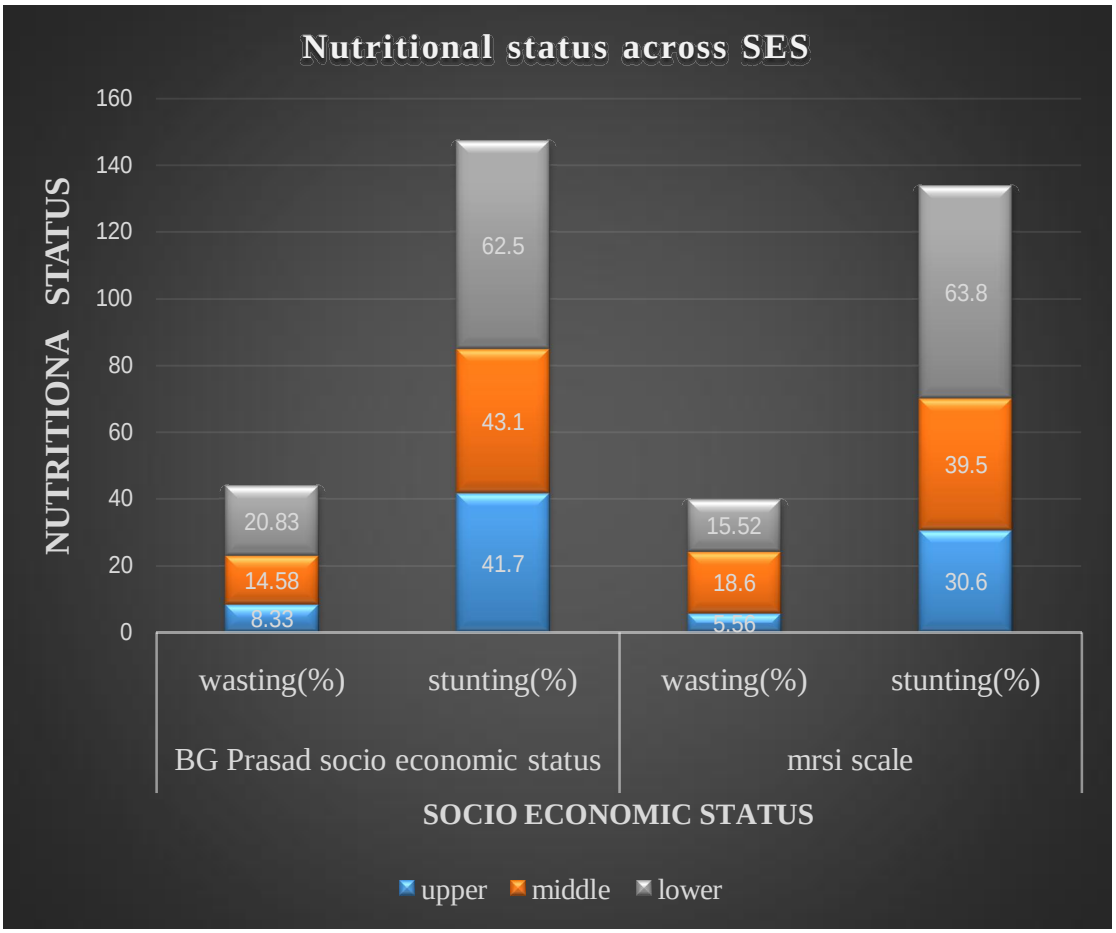
groups (8.3, 14.58 and 20.83%) and no statistical significance in acute malnutrition was detected between the groups.

Similarly no significant difference between the socioeconomic classes in the chronic malnutrition was detected across the classes (41,43.1 and 62.5%), though majority living in lower class had chronic malnutrition.

Based on MRSI, 18.6% belonging to middle socioeconomic class have acute malnutrition .and there is no significant difference across the classes. (5.56, 18.6, 15.5%). In chronic malnutrition there is statistically significance (P-0.002) present across the economic classes in our study . Compared with upper class and middle class (30.6% and 39.5%), more stunting occur in lower class (63.8%).

SES LONG TERM EFFECTS ARE MORE

FIGURE SHOWS DISTRIBUTION OF MALNUTRITION ACROSS THE SOCIO ECONOMIC CLASS.



Aravind Sharma et al ,said their study as family income was significantly associate with stunting, wasting , and underweight[73]

Meshram II, Mallikharjun Rao K et al found that the risk of undernutrition was significantly higher among children belonging to lower and middle as compared to high socio-economic groups." [74]

Elham Kavosi et al done a cross sectional in Iran .they reported as low family income was significantly associated with stunting. [72]

DISTRIBUTION OF NUTRITIONAL STATUS ACROSS BIRTH INTERVAL

Birth interval noway significant in malnutrition. In this study we are not able to establish statistical difference across birth intervals preceeding or subsequent to the current child .though the presence of siblings and smaller birth interval < 2yrs (19.8% & 51.8%), (15.63% & 46.2%) had a marginally higher level of prevalence for acute and chronic malnutrition.

Mostafa Kamal Sm et al states that increased risk of severe stunting among the high birth order of children[75].

And also Hiwot Yisak et al indicated in their study that the prevalence of malnutrition higher among birth order of 6 and above children .[75] [76]

TABLE - 4

DISTRIBUTION OF NUTRITIONAL STATUS ACROSS THE SIBLINGS STATUS

Variables		N	Acute malnutrition		Chronic malnutrition	
			(%)	P value	(%)	P value
Siblings	Yes	83	19.28	0.137	51.81	0.119
	No	97	11.34		40.21	
Preceding child birth interval	<=2years	160	15.63		46.25	0.597
	>2 years	20	10	0.507	40	
Birth interval of following child	<= 1years	144	13.19	0.175	43.75	0.331
	>1 years	36	22.22		52.78	
Currently antenatal mother with preceding child birth interval	<= 1years	19	10.1	0.105	39.2	0.132
	>1 years	38	18.8		50.5	

An analysis of demographic and health survey (DHS) data collected from the 52 developing countries revealed that when the mother conceived

conceived <24 months after the next oldest sibling birth had 1.1 to 2.3 times higher risk of dying within the first year of life[53].

The DHS analysis reported as the likelihood of a child becoming stunted rate increases with decreasing birth intervals. 25 % more likely to be stunted and 25% more likely becomes underweight than those delivered with the birth interval of 36 to 47 months.

DISTRIBUTION OF MALNUTRITION AMONG THE VARIABLES RELATED TO THE MOTHER

In this study Mothers age ranging from 19 to 35 years, Mean age of the Mother is 25.4 years.

Acute malnutrition was maximum in 25-29 yrs age group (24.69%) compared to the 19 to 24 age and greater than 30 yr group (Table 5) which is statistically significant (pvalue=0.004). However there is no significant difference in proportion with chronic malnutrition across maternal age (table 5).

Educational status of mother : (table 5) shows, the number who had education less than primary and no education (illiterate) was very small (16 & 3 numbers) this study.

Study was not able to pickup statistically significant difference in acute malnutrition. However though was a decreasing trend in proportion with

malnutrition as education increase (100%,50%,43.36%) statistically significant difference not present .

Stalein P et al, states that mothers education up to higher secondary and graduate were less malnourished[77]

Indrapal Ishwarji et al, says in their study ,risk of underweight and stunting was significantly higher among illiterate mothers.Aashima Garg et al reported in their study maternal education was significantly associated with under weight and wasting .

TABLE - 5

DISTRIBUTION OF MALNUTRITION ACROSS THE VARIABLES RELATED TO THE MOTHER

Variable	Total number	Acute malnutrition		Chronic malnutrition	
		%	P value	%	Pvalue
I.Mothers age in years					
19 to 24	80	7.5	0.004*	52.5	0.235
25 to 29	81	24.7		40.74	
≥ 30	19	5.26		36.84	
II.Education of mothers					
Illiterate	3	0	0.643	100	0.269
Primary	16	6.25		50	
Middle and High school	113	15.93		43.36	
Diploma and Graduate	48	16.67		45.83	
III.Employment status of the mother					
Yes	22	18.18	0.656	45.45	0.992
No	158	15.08		45.57	

IV.Received full AN care					
Yes	179	15.08	0.674	45.81	0.359
No	1	0		0	
V.Received full course of IFA tablets					
Yes	124	13.71	0.471	44.35	0.63
No	56	17.86		48.21	
VI.Type of delivery					
Normal	104	14.42	0.574	47.12	0.659
Caesarian	71	16.9		42.25	
Assisted vaginal	5	0		60	

*pvalue significant (< 0.05)

Employment status of mother In our study, only (12.2%) mothers are employed. Though the marginally larger proportion of employed women 18% compared to 15% in unemployed mothers in this significant difference was not established (table 5)

Anurag srivastav et al reported in their study as children with working mother had higher risk of undernourished children[71]

Antenatal care and IFA tablet :

In this study, only one person not receiving Antenatal care .there was it impractical to compare effects of Antenatal care on Nutritional status (table5)

NFHS-IV (2015-16): RURAL WOMEN who had completed their 4 ANC visit is 81%. And who consumed IFA tablet for 100 days is 62.9%.

TYPE OF DELIVERY Among 104 (57.8%)normal delivery 14.42% have a acute malnourished child and 47.12% of chronic malnourished child .among caeserian 16.9% have acute malnourished child .42.25% of chronic malnourished child and in assisted vaginal delivery among 2.8% ,60% have a chronic malnourished child.

Amy J .Hobbs et al done a study on “the impacts of caesarean section on breast feeding initiation, duration and difficulties in the first four months postpartum”. they reports that women deliverd by emergency c-section have higher proportion of breast feeding difficulties and also used more resources before and after leaving hospitals .and women with elective c-section were more likely to discontinue breast feeding before 12 weeks of post partum.[52]

DISTRIBUTION OF NUTRITIONAL STATUS AMONG THE VARIABLES RELATED TO CHILDREN

Birth weight of the children

In our study 6(20%) of children affected by acute malnutrition among the low birth weight of < 2.5 kg .and also 18 (60%) are chronically malnourished both acute and chronic malnutrition, not significant .(shown in table 6.)

Meshram II,et al ,reported as the risk of underweight and stunting was 3 times more among low birth weight children (< 2.5kg)

Shreyaswi sathyanath M et al found out In this babies who born prematurely has a significantly higher rate of undernutrition.

Timing of birth of children : .though analysis had shown statistically significant difference of acute malnutrition across timing of birth ,the actual number of preterm and post term (9) very few to make meaningful analysis .the study showed single post term ,100% develop chronic malnutrition ,almost one third of preterm have chronic malnutrition .(table 6)

Stalin P et al reported in their study as prevalence of underweight was lesser among the full term children than preterm and post term babies.

TABLE - 6

DISTRIBUTION OF NUTRITIONAL AMONG THE VARIABLES RELATED TO CHILDREN

Variables	Frequency N	Acute Malnutrition (%)	P-value	Chronic Malnutrition %	P-value
I . Birth weight of the children					
< 2.5 kg	30	20	0.40	60	0.08
>2.5 kg	150	14		42.7	
II. Timing of delivery					
Term	171	15.2	0.029*	45.61	
Pre term	8	0		37.55	0.495
Post term	1	0		100	
III . Immunization appropriate for age					
Complete	175	14.29		44.57	0.117
Incomplete	5	40	O.112	80	
IV . Deworming status of children					
Yes	56	10.7	0.279	48.2	0.63
No	124	16.9		44.3	

*pvalue significant (< 0.05)

Immunization status of children : Table 6. shows ,there is very wast difference in the prevalence of acute malnutrition in those with incomplete immunization for the age .(40 compared with 14%),in this study population 0.02% therefore it was not possible to establish statistical similarity with 80% of those with incomplete immunization had chronic malnutrition ,compared to 44% in fully immunized .

Chowdhury F1 et al done a retrospective case-control analysis study among 4075 children of 12-23 months in the year of 1994-2003, about the Malnutritional status and Measles vaccination status. In this study, 51% of the children without measles immunization were stunted, 76% were underweight, and 48% were wasted. The non-immunized children were twice as likely to be stunted, underweight, and wasted than the immunized children.

NFHS –IV data for Tamil Nadu : in rural area 66.8% of 12 -23 months children fully immunized (receives BCG ,Measels ,3 doses of polio & DPT) and 9-59 months children received Vitamin A in last 6 months.

Deworming status of children: though one third of them were dewormed, it was not possible to establish the statistically significant in malnutrition though there was marginally higher prevalence of acute malnutrition (16.9%) those ,there were not deworming done.(table6)

Worm infestation of children affects the nutritional status of children. Studies prove that regular periodic deworming improves weight gain of children .there is no significant difference between child received

deworming and not received deworming . In our study both acute and chronic malnutrition distributed almost equally among child who received and not.

Kennath N,Opara.phd et al , said in their study as intestinal parasites infestation is still a major public health problem in poor and developing countries .Hook worm and Lumbricoides were each significantly (< 0.05) associated with stunting and wasting and underweight.[78]

Birara Melese Yalew, in their study said that, deworming status significantly associated with stunting.

DISTRIBUTION OF NUTRITIONAL STATUS ACROSS BREAST FEEDING PRACTICES

Initiation of Breast feeding within four hours of Birth : In this study ,there is significant difference (0.005%) (present in the acute malnutrition status among those mothers initiated breast feeding within 4 hours of birth and not initiated .in chronic malnutrition there is no significant difference. In our study the percentage of initiation of breast feeding within 4 hours is 76.7%. Salah E.O. Mahgoub et al states in their study the prevalence of under weight grossly reduced in Breast feed children.

Prelacteal feeding (PLF) : in this study the percentage of prelacteal feeding practiced is 42.8%. It has significantly difference (0.017) in chronic malnutrition condition between those received PLF and not received PLF.

Colostrum feeding : In this study shows (table 7) those not practicing colostrum feeding the prevalence of acute and chronic malnutrition was high .in chronic malnutrition it was statistically significant .“Infant and young child feeding Guidelines 2010,formulated /recommended by IYCF chapter of IAP ’’said that Colostrum must not be discarded ,it should be fed to the new born ,because of it contains higher level of protective immuno globulin .

TABLE - 7

DISTRTBUTION OF NUTRITIONAL STATUS DEPENDING ON THE BREAST FEEDING PRACTICES

Breast feeding practices	Total number	Acute malnutrition		Chronic malnutrition	
		%	P –value	%	P-value
I . Initiation of breast feeding with 4 hours given					
Yes	138	10.87	0.005 *	44.2	0.509
No	42	28.57		50	
Ii . Prelacteal feeds given					
Yes	77	19.5		55.84	
No	103	11.65	0.146	37.86	0.017*
Iii. Colostrum given					
Yes	79	8.9	0.846	38	
No	101	19.8		51.5	0.001*
Iv . Exclusive breast feeding practicesd					
<= 6 months	171	12.87		46.78	
>6 months	9	55.56	0.001 *	22.2%)	0.149

*pvalue significant (< 0.05)

Exclusive breast feeding: <= 6months ,exclusive breast feeding is practiced in 95% children .only 5% exclusively feed for > 6 months .those

exclusively breast feed for more than 6 months developing more acute malnutrition (55.56%) in our study .because after 6 months of children life only breast feed is not enough .at the 6 months of age complementary food must be started)

DISTRTBUTION OF NUTRITIONAL STATUS IN COMPLEMENTARY FEEDING AND OTHER FEEDING PRACTICES

Table .8. shows Complementary feeding initiated <6 months initiation ,had more prevalence of acute malnutrition .

Arvind Sharma et al done study among under five children , Exclusive breast feeding is a prominent risk factor which is significantly associated with under weight and wasting and stunting.

Shreyaswi Sathyanath M et al , said that the prevalence of undernutrition was higher in those children not Exclusively breast fed and on improper complementary feeds

Hong Zhou PHD et al studied the relationship between child feeding practices and malnutrition in 7 remote and poor countries ,P R China. Sample of 2201 and 1978 care givers were obtained with multistagecluster random sampling .(higher prevalence of stunting among Chinese children who had never been breastfed, who had been breastfed for less than 1 year, or had been fed with semi-solid foods of poor quality .(65)--.50)

Birara Melese Yalew et al done a study on malnutrition and and its associated factors in 6 months to 59 monts children in north Ethiopia. the study results shows giving honey to the child in the morning time were significantly with under weight .

TABLE - 8

DISTRTBUTION OF NUTRITIONAL STATUS IN COMPLEMENTRY FEEDING AND OTHER FEEDING PRACTICES

Variables	Total number	Acute malnutrition		Chronic malnutrition	
		%	P value	N (%)	P value
I . Initiation of Complementary feeding					
<=6 months	175	19.7	0.179	46.97	0.772
>6months	5	12.28		51	
II . Type of food initiated					
Liquid	22	22.73	0.03*	27.27	
Semisolid	157	13.38		47.77	0.107
Solid	1	0		100	
III. Formula feeding influenced by media					
Yes	165	14.55	0.571	45.45	
No	15	20		46.67	0.928
IV . Type of current food given					
Milk based diet	20	15		35	
Regular family food	139	15.11		49.64	
Separate food	19	15.79	0.948	26.32	0.196

Modified	2	0		50	
V .frequency of feed per day					
<3	44	15.91		70.45	
4	136	15.96	0.791	41.5	0.001*
5		13.51		29.73	
6		0		20	
VI. Self feeding					
Yes	70	20	0.134	50	0.34
No	110	11.8		42.73	
VII . Traditional feeding practices					
Yes	176	14.2	0.047*	46.6	0.064
No	4	50		0	
VIII . Feeding during illness					
Yes	167	15	0.968	45.5	0.964
No	13	15.38		46.15	
IX. Type of food given during illness					
Regular	36	13.89	0.835	41.67	0.6
Separate	144	15.28		46.53	
X . Aware of feeding during illness					
Yes	36	8.33	0.21	38.89	0.369
No	144	16.67		47.22	

*p - value significant (<0.005)

Based on the the NFHS –IV(2015-16) data for the Tamil Nadu child feeding practices in rural area of Tamilnadu : the Children under 3 years age breast feeding within one hour of Birth is 54.2%.

At and after 6 months age child needs extra food other than breast milk.if complementary food not initiated after 6 months age ,nutritional requirement of the body is not met so that nutritional depriviation can occur . WHO formed guideline about infant and young child feeding practices .

Type of food initiated in the weaning process also influences the nutritional status of children .In our study ,majority 157(87.2%) initiated semisolid food . child who receives liquid food in the initial period affected by acute malnutrition more likely(22.73%) .there is a significant difference in the acute malnutrition status with initiation of type of food . but there is no significance in chronic malnutrition .

Based on ,NFHS –III (2005-06)survey ,In India ,only 55% of children in the age of 6-8 months receives complementary foods in the form of semisolid or solid ,in addition to breast milk .This form of complementary feeding practices remains to be a significant public health problem .

Formula feeding : in our study only 15 children of mothers not influenced by formula feeding .others influenced by formula feeding .there is no significant difference.

“The Government of India enacted the Infant Milk Substitutes ,Feeding Bottles and Infant Food (regulation of production ,Supply ,and

Distribution) Act 1992.it prohibits the promotion of infant food ,infant milk substitutes and feeding bottels ”

A New ‘’Baby friendly Hospital initiative ’’(BFHI) cerated and promoted by WHO and UNICEF ,for successively encourage proper Infant feeding practices from the Birth itself. In the BFHI , advised in the newborn period no food or not even sips of water given.It advised no artificial teats or pacifiers (dummies or soothers) to breastfeeding infants .[79]

Type of current food also plays an important role in acute and chronic malnutrition .majority 139(77.2%) receives regular family food .only 10.6% receives separate food for babies .this also not have an significant difference .

Feeding frequency per day

Feeding frequency plays an main role in malnutrition. 29.47% have an acute malnutrition .52(72.2%) have chronic malnutrition .feeing frequency per day was significant in chronic malnutrition .(shown in table 8)

Aashima Garg an d Ravinder Chadha done a study “Index for Measuring the Quality of complementary feeding practices among 6-12 months children in rural India .”in this study results are meal-frequency in 6-8 months Infant ,and breast feeding frequency were significantly($p<0.005$) associated with underweight and wasting.[80]

Self feeding

Self feeding practices also improves the nutritional status of children .in this study self feeding practices was not significant with malnutrition.

Traditional feeding practices

Table 8 . shows almost feeding practices like grip water and mixture of home available medications like fenugreek was practiced every one in the study group except 4 of them .this study seems to show a variable result of lower prevalence of acute malnutrition in those traditional practices .the validity of this results is doubtful because ,these numbers not using traditional practices ,was very very small .It's really valuable result.it requires further investigations to study its safety . In chronic malnutrition it had statistically significant (p-value 0.064).

Feeding during illness

Feeding during illness like respiratory and diarhoea illness plays an important role. During illness ,the body requires extra food for their metabolism .majority of people restrict food during the illness ,or they follow certain form of food only ,they avoid regular food. In this study only 13% acknowledge they don't feeding during illness .subsequently it was not possible to establish the association between malnutrition and feeding during illness.(table 8)

The proportion in the malnutrition those aware are compared with not aware , however because of low numbers ,statistically significant difference was not established .

As per Infant and young child feeding practices guidelines ,during the sickness period ,feeding plays an important role for recovery and the prevention of malnutrition .even sick babies continue breast feeding mostly.and also infant should fed with small quantities of nutrient rich food more frequently by offering the food which child likes to eat. After recovery from the illness the food intake should be increased for a period of month

Distribution malnutrition across the hygienic practices.

Hand washing practices before feeding :

Those rarely using hand washing practices developing more (20.59%) acute malnutrition and never using (83.33%) developing chronic malnutrition .In chronic malnutrition it has an significant difference. (p-value-0.005).(table 9)

Using Purified Water

In our study purified water does not play a significant role in acute and chronic malnutrition .(p-value -0.066). In our study states that safe hygienic practices plays a significant role in chronic malnutrition than acute malnutrition .Pruss-Ustun ,A.et al , said that on 2008 ,globally ,half of all cases of undernutrition in underfive children were caused by Unsafe water ,and Inadequate sanitation and Insufficient hygiene.

Table – 9

DISTRIBUTION OF NUTRITIONAL STATUS RELATED TO HYGENIC PRACTICES

Variable	Frequency N	Acute malnutrition		Chronic malnutrition	
		%	P value	%	P value
I .Hand washing before feeding					
All time	54	12.96	0.558	40.74	0.005 *
Mostly	86	15.12		37.21	
Rarely	34	20.59		67.65	
Never	6	0		83.33	
Ii . Using puirified water					
Yes	99	12.12	0.232	39.39	0.066
No	81	18.52		53.09	

*p-value significant < 0.05.

In our study following factors are statistically significant with acute malnutrition .age group (<=12months, >12 months) ,mothers age timing of birth (term,preterm, post term),initiation of breast feeding within 4 hours ,exclusive breast feeding , type of food initiated , Frequency of feeding ,traditional feeding practices.

Age group of child , gender of child ,SES (MRSI), Prelacteal feeding ,colostrum feeding , frequency of feeding were significantly associated with chronic malnutrition .

ESTABLISHING STRENGTH OF ASSOCIATION OF MALNUTRITION ACROSS DETERMINING VARIABLES

Those factors which were statistically significant associated by univariate analysis, where then subjected to multivariate analysis by logistic regression .

In our final Regression model after adjusting for all other co variate those who were initiating the complementary feeding <= 6 months of age had 14 times higher odds (OR -13.94 ,95% C .I. 1.97 - 98.544)of developing acute Malnutrition than those who were taking the complementary feeds after 6 months of age . As shown in table 10. This observed difference was statistically significant .(p-value 0.008).

This observes that up to 6 months of age exclusive breast feeding must be practiced .after 6 months only initiate complementary feeding to prevent Acute malnutrition in the study population .

TABLE - 10

RISK FACTORS CONTRIBUTING TO ACUTE MALNUTRITION BY LOGISTIC REGRESSION

RISK FACTORS	ADJUSTED	95% C.I.	p value

	ODDS RATIO	Lower	Upper	
Age groups <=12months >12months	0.33	0.11	0.99	0.04
Complementary feeding started <=6months > 6 months	13.94	1.97	98.54	0.008
Complementary feeding other than milk <= 6months >6months	0.16	0.03	0.71	0.01
Exclusive breast feeding <=6months >6months	0.08	0.01	0.41	0.003
Traditional feeding practices Yes No	0.10	0.01	0.81	0.031

McFadden R2 = 0.163 Lower value taken as a reference value.

TABLE - 11

RISK FACTORS CONTRIBUTING TO CHRONIC MALNUTRITION BY LOGISTIC REGRESSION

RISK FACTORS	ADJUST	95% C.I.	P value

	ED ODDS RATIO	Lower	Upper	
Age in groups <=12 months > 12 months	0.52	0.26	1.02	0.05
Frequency of feed /day < 3 times per day >3 times per day	2.59	1.17	5.70	0.018
MRSI socioeconomic status Upper Middle Lower	0.61	0.44	0.84	0.002
Prelacteal feeding given Yes No	1.90	0.99	3.64	0.052

McFadden R2 = 0.128

Noted : lowest group is reference group.

In our multivariate regression model ,the children with frequency of feeds < 3 times per day had 2.5 times higher odds of developing chronic malnutrition than those with frequency of feeds > 3 times. (OR: 2.593, 95% C.I. 1.179 -5.705) as shown in table 11 this observed difference was statistically significant (p-value 0.018).

In this study, we found that 2 times higher odds of developing chronic malnutrition among those who were received prelacteal feeds than those not receiving prelacteal feeds(odds ratio ;1.902, 95% C.I.0.994 -3.641).as shown in table 11, when adjust for other covariate Difference was statistically significant (p-value 0.052)

This study observed that the children who were feeds by the mother > 3 times per day have a protective role in the development of chronic malnutrition among 6 months to 2 years children .and also those children who were not receiving prelacteal feeds in the newborn period had protected from chronic malnutrition .

CONCLUSION

- The prevalence of Undernutrition as measured by wt for age (under weight) was 31.6% .
- The Prevalence of Moderate undernutrition was 22.2% (95 % CI: 16.7 to 28.3)
- The Prevalence of Severe undernutrition was 9.4% (95% CI:5.6 to 13.9).
- The Prevalence of Acute Malnutrition (Wasting) measured by weight for height was 15% .
- The Prevalence of Acute moderate malnutrition (wasting) was 12.8% (95% CI :8.3 TO 18.3)
- The Prevalence of acute severe malnutrition (wasting) was 2.2% (95% CI : 0.6 to 4.4)
- The Prevalence of chronic malnutrition (stunting) was measured by Ht for Age was 45.6%
- The Prevalence of Chronic moderate malnutrition(stunting) was 21.7% (95% CI: 16.1 to 28.3)
- The Prevalence of Chronic severe malnutrition (stunting) was 23.9% (95% CI : 17.8 to 30.0)

- The following factors was associated significantly with acute malnutrition :

Age groups of children (<=12 months ,>12months), mother's age, timing of birth(term, preterm, post term), Initiation of breast feeding within 4 hours, exclusive breast feeding ,type of food initiated , traditional feeding practices.

- The following factors was associated significantly with chronic malnutrition :

Age groups (<=12months ,> 12 months),Gender (male ,female) ,SES,

Initiation of prelacteal feeding, colostrum feeding ,frequency of feeding per (<3 times ,>3 times),hygienic practices (hand washing)

- After applying Multivariate analysis with Adjusting for covariates timing of initiation of complementary feeds was statistically significant in acute malnutrition. Starting complementary feeds too early (before 6 months) had an odds of 14 (95% C.I.1.97 TO 98.54) for developing acute malnutrition.

- On Multivariate analysis with adjusting for covariates, frequency of feeds per day (< 3 times, > 3 times)and prelacteal feeds was statistically significant in chronic malnutrition .

LIMITATIONS OF THIS STUDY

- The sample size was calculated with allowing errors of 8% which has 20% relative precision therefore it may have been inadequate established significance.
- Since this study was a cross sectional study, the measurements of exposure and disease were collected at the same time, so temporal sequence was not established .
- There might be some potential recall bias among the respondent when answering about questions related with the feeding practices like prelacteal feeding and colostrum feeding .

RECOMMENDATIONS

The Prevalence of Chronic Malnutrition (Stunting) was 45.6%, compared to state average value of 30.9%, It was higher among the study area.

* In this study observations ,the feeding practices plays an major role in Acute Malnutrition and Chronic Malnutrition .hence the child feeding practices should be improved in the study area .

* The Village health workers should be trained about the WHO BASED INFANT AND YOUNG CHILD FEEDING PRACTICES .and regularly updated about the information

* Health education about the breast feeding and other feeding practices to this study area should be done periodically

* The prevalence of chronic malnutrition (stunting) was high in the child > 12 months age group reflects the onset of malnutrition in the first year itself .Therefore a corrective efforts to be focused during the first year of life itself .

* Surprisingly 35% of children have increased wt for ht , reflects a tendency to become obesity.

* Majority follows the Traditional feeding practices ,so that further study required to analysis the safety practices .

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S.No	TITLE
I	**INSTITUTIONAL ETHICAL COMMITTEE APPROVAL**
II	**QUESTIONNAIRE**
III	**INFORMATION TO PARTICIPANTS AND PATIENT CONSENT FORM**
IV	**MRSI SOCIOECONOMIC SCALE**
V	**KEY TO MASTER CHART**
VI	**MASTER CHART**
VII	**TAMIL CONSENT FORM**

QUESTIONNAIRE FOR A CROSS SECTIONAL STUDY ON THE PREVALENCE OF ACUTE AND CHRONIC MALNUTRITION AND ITS DETERMINANTS AMONG 6 MONTHS TO 2 YEARS CHILDREN IN RURAL AREA, TAMIL NADU

Name of the Baby : Date of Birth :

Current Age of the Baby : months

Gender of the Baby : Male / Female

Informant : Mother or reliable care taker

Birth weight of the Baby (kg) : a . <2500 b. 2500-4000
c. >4000

Timing of birth : a. Term b. pre term c. Post term

Type of delivery : a .Normal delivery b. Caesarean section
c. Assisted

Type of family : a. Nuclear b. Joint c. Extended family

Total family members

Socio economic status : 1.Upper class 2 .Upper middle 3.Middle
4.Upper lower 5 .Lower

Current age of the mother

Educational status of mother : a . Illiterate b. Literate but no formal schooling/up to 4 years
c. School 5 to 9 year d . SSC/HSC
e . Some college (incl a diploma but not graduate
f. Graduate / post graduate general

Employed : a. Yes b. No

Antenatal visits completed : a.Yes b. No

Complete dose of Iron
folic acid taken : a.Yes b.No

How many childrens in the family : a .1 b. 2 c.3 d.4

If 2 ,birth interval of previous child
a.1 year b.2 years c. 3 years d. More than 3 ys

If more than 2 , what is the birth interval of subsequent children

a.1 year b. 2 years c. 3 years d. More than 3 years

Immunization status : a. Immunized till the age
b. Not Immunized till the age .

Initiation of breast feeding with in 4 hours : a . Yes b. No

If , any pre lacteal feeding given : a . Yes b. No

Colostrum given : a .Yes b. No

Exclusive breast feeding was practiced : a .Yes b. No

How many months exclusive breast feeding was practised : a. <3months b.4 months
c. 5 months d.6 months
e.>6 months

If Non Exclusive breast feeding, the supplementary food : a .Water b. Cow milk
c. Formula milk

How can you feed : a .Bottle b. Tumbler c. Baladai
d. Cup

When will you started the complementary feeds other than milk feeds

a . 3 months b. 4 months c. 5months d .6months e.more than 6 months

What type of food given in the initiation period

a .Liquid b. Semisolid c. Solid

What type of food given in the Current Period

a. Milk based kanji b. Regular family diet c. Separate baby food
d. Modified family diet or unmodified e. Others

Frequency of Feeding Per day
Hand washing of feeder before feed your child
a . All the time b. Most of the time c .Rarely d. Never
Purified water used for drinking : a. Yes b. No

How they use the water : a. Bottle b. Tumbler c. Cup
d. Baladai Traditional practices for internal administration if any,

Self feeding are there a .Yes b. No

Formula feeding habits where influenced by media a .Yes b .No

In the past 6 months , child had any illness a .Yes b. No

Are you feeding during episodes of illness a .Yes b. No

If Yes, what given, a. regular food b.separate food

Are You aware that regular food can be given during illness. a. Yes b. No

Deworming done to the child a. Yes b. No

II.Data on anthropometric and clinical examination (assessment of nutritional status)

Current Weight : Current length/ Height :

Mid upper arm circumference: Head circumference : Chest circumference:

As per The IMNCI guideline : General examination; gluteal wasting, palmar pallor

ANNEXURE III

INFORMATION TO PARTICIPANTS

Investigator : DR. DHANALAKSHMI .S

Name of the participant child :

Name of the Informant :

Title of the study : A cross sectional study on the prevalence of acute and chronic malnutrition and its determinants among 6 months to 2 yrs children, rural area, Tamilnadu.

You are invited to take part in this research study. We have got approval from Institutional ethical committee of Kilpauk medical college. We would be measured your children's weight, height, midarm circumference, head circumference ,chest circumference and asking you questions regarding the determinants of nutritional status of your child so that appropriate preventive measures could be planned.

Date :

Place :

Signature of the investigator :

Signature/thumb impression of the Informants :

PATIENT CONSENT FORM

Study detail :

Study centre :

Patients Name :

Patients Age :

Identification Number :
Patient may check ( ) these boxes

I confirm that I have understood the purpose of procedure for the above study. I have the opportunity to ask question and all my questions and doubts have been answered to my complete satisfaction.

I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving reason, without my legal rights being affected.

I understand that the ethical committee and the regulatory authorities will not need my permission to look at my health records

However, I understand that my identity will not be revealed in any information released to third parties or published, unless as required under the law. I agree not to restrict the use of any data or results that arise from this study.

I agree to take part in the above study and to comply with the instructions given during the study and faithfully cooperate with the study team and to immediately inform the study staff if I suffer from any deterioration in my health or well-being or any unexpected or unusual symptoms.

I hereby consent to participate in this study.

I hereby give permission to undergo complete clinical examination

Signature/thumb impression: Signature of investigator:
Patients Name ad Address: "study ivestigator's name:

ANNEXURE IV

MRSI SOCIOECONOMIC SCALE

Market Research Society of India Scale:

The New SEC system used to classify Households in india, based on two variables

1) Education of the chief earner

2) Number of consumer Durables(from a predefined list)- owned by the family.

The list has 11 items, ranging from electrical connection and agricultural land to cars and air conditioners

There are twelve grades in the SEC system , ranging from A1 to E3.

Source: Imbrint.com/research/The-New-SEC-system-3rdMay2011.pdf

As MRSI scale is a new scale, we also used Modified BG.PRASAD Socio economic scale classification for comparison

THE NEW MRSI SOCIOECONOMIC SCALE


RECORDING
The grid

o1

	Items owned / have access at home	Circle	Tick
1a	Electricity Connection	01	√
	Ceiling Fan	02	√
	LPG Stove	03	√
	Two Wheeler	04	√
	Colour TV	05	√
	Refrigerator	06	√
	Washing Machine	07	
	Personal Computer/ Laptop	08	
	Car/Jeep/Van	09	√
	Air Conditioner	10	
1b	Agricultural Land	11	√
	NUMBER OF STANDARD 11 OWNED		8

10 | THE NEW SEC SYSTEM

Source: Imbrint.com/research/The-New-SEC-system-3rdMay2011.pdf

ANNEXURE IV – THE NEW MRSI SOCIOECONOMIC SCALE

No. of Durables	Chief Earner: Education (Q2)						
	Illiterate	Literate but no formal schooling/ School- Upto 4 years	School- 5 to 9 years	SSC/ HSC	Some College (incl a Diploma) but not Grad	Graduate/ Post Graduate: General	Graduate/ Post Graduate: Professional
	1	2	3	4	5	6	7
None	E	E	E	E	E	E	D
1	E	E	E	E	D	D	D
2	E	E	D	D	D	D	D
3	D	D	D	D	C	C	C
4	D	C	C	C	C	B	B
5	C	C	C	B	B	B	B
6	C	B	B	B	A	A	A
7	C	B	B	A	A	A	A
8	B	A	A	A	A	A	A
9+	B	A	A	A	A	A	A

Source:http://imrbint.com/research/The-New-SEC-system-3rdMay2011.pdf

A CROSS SECTIONAL STUDY ON THE PREVALENCE OF ACUTE AND CHRONIC MALNUTRITION AND ITS DETERMINANTS AMONG 6 MONTHS TO 2 YEARS CHILDREN IN RURAL AREA, TAMIL NADU

சுய ஒப்புதல் படிவம்

ஆய்வு செய்யப்படும் தலைப்பு :

பங்கு பெறுபவரின் பெயர்:

பங்கு பெறுபவரின் வயது:

பங்கு பெறுபவரின் எண் :

பங்கு பெறுபவர் இதனை (√) குறிக்கவும்

மேலே குறிப்பிட்டுள்ள மருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது. என்னுடைய சந்தேகங்களை கேட்கவும், அதற்கான விளக்கங்களை பெறவும் வாய்ப்பளிக்கப்பட்டுள்ளது என அறிந்து கொண்டேன். ☐

நான் இவ்வாய்வில் தன்னிச்சையாக தான் பங்கேற்கிறேன். வந்த காரணத்தினாலோ எந்த சட்டசிக்கலுக்கும் உட்படாமல் நான் இவ்வாய்வில் இருந்து விலகி கொள்ளலாம எனறும் அறிந்து கொண்டேன். ☐

இந்த ஆய்வு சம்பந்தமாகவோ , இதை சார்ந்து மேலும் ஆய்வு மேற்கொள்ளும் போதும் இந்த ஆய்வில் பங்கு பெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளை பார்ப்பதற்கு என் அனுமதி தேவையில்லை என அறிந்து கொள்கிறேன். ☐

இந்த ஆய்வின் மூலம் கிடைக்கும் தகவலையோ , முடிவையோ பயன்படுத்திக கொள்ள மறுக்கமாட்டேன். ☐

இந்த ஆய்வில பங்கு கொள்ள ஒப்புக் கொள்கிறேன். இந்த ஆய்வை மேற்கொள்ளும் மருத்துவ அணிக்கு உண்மையுடன் இருப்பேன் எனறும் உறுதியளிக்கிறேன். ☐

பங்கேற்பவரின் கையொப்பம் : _____ இடம் _____ தேதி _____

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்:

சாட்சியாளரின் கையொப்பம் : _____ இடம் _____ தேதி _____

சாட்சியாளரின் பெயர் மற்றும் விலாசம்:

ஆயவாளரின் கையொப்பம் : _____ இடம் _____ தேதி _____

ஆய்வாளரின் பெயர் : _____

s.no	Name baby	DOB	C.Age (months)	gender	informant	BW	m/o delivery	type delivery	neo admission	type family	t family members	motherage (years	education of mother	employed	anc visit	ironfolic	no of children	BI PREVC	next child	antenatal (months)	immunization	initiation breastfeed	prelacteal	colostrum	EBF	how many months	Cfother than milk	type of food initiation	current food	frequency of feed	hand wash	water source	purited	traditional practices	self feed	Ffin flu media	anyillness	feedin illness	what	awareness food	deworming	c.wt (kg)	c.ht (cm)	MAC (cm)	HC (cm)	CC (cm)	wt for age	ht for age	wt for ht	MAC (cm)	HC (Z Score)	ses (prasad)	MRSA	h/o educ	occupat	income	PCI
1	Bharani	1.7.2015	12	1	1	2	1	1	2	2	5	22	1	2	1	2	1	0	0	7	1	1	2	2	1	4	4	2	2	1	3	1	2	1	2	1	1	1	1	2	2	2	8.5	63	145	435	46	1	3	p3	1	2	3	5	3	2	15000	2142.85
2	sanjana	15.1.2015	7	2	1	2	1	1	2	1	5	22	4	2	1	1	2	2	0	0	2	2	1	2	1	4	4	2	1	2	3	1	2	1	2	1	1	1	1	2	2	2	6	60	13	405	40	1	3	p1	2	2	3	5	4	1	10000	2000
3	priyadharshni	17.8.2015	11	2	1	2	1	1	2	1	5	21	3	2	1	1	2	1	0	0	1	1	1	1	1	5	4	2	2	2	2	1	2	1	2	1	2	2	2	0	2	2	6.8	62	13	41	41.5	2	3	p1	2	3	3	3	4	3	12000	2400
4	bharathi	12,12.2014	18	2	1	2	1	1	2	1	5	19	4	2	1	2	2	1	0	0	2	1	2	2	1	2	4	2	2	1	3	1	2	1	2	1	1	1	1	2	2	2	6.1	70	11.5	43	42	3	3	p4	3	3	3	5	3	1	10000	2000
5	sabaari	01.11.2014		20	1	1	2	1	1	2	1	5	27	4	1	1	2	3	4	0	0	1	2	1	2	1	2	4	2	2	2	3	1	2	1	1	1	1	1	2	2	2	9	72	13.5	45	46.5	2	3	p1	2	2	3	5	3	12,000	2400
6	ajithku		24	1	1	2	1	1	2	1	3	21	5	2	1	1	1	0	0	7	1	1	1	2	1	4	4	2	2	1	3	1	2	1	1	1	1	1	2	2	1	8.5	72	11	44	42	3	3	p1	3	4	3	5	1	2	80000	2666.

	mar01.06.201424																																																								66
7	dharan	1.10.2014	20	1	1	1	1	1	2	1	3	22	4	2	1	2	1	0	0	0	1	2	1	2	1	4	4	2	2	3	4	1	2	1	1	1	1	2	0	2	1	9.4	78	13	44.5	45	1	2	1	2	3	3	4	4	3	8000	2666.66
8	veeramani	5.12.2014	18	1	1	2	1	1	2	2	8	26	3	2	1	1	5	0	0	4	1	1	2	1	1	4	4	2	2	1	3	1	2	1	1	1	1	1	2	2	1	4.8	60	10.8	44	41.3	3	3	3	3	3	4	5	3	3	20,000	1500
9	vishva	28.5.2014	24	1	1	2	1	1	1	1	4	23	3	2	1	1	2	1	0	0	1	1	2	2	1	4	4	2	2	1	3	1	2	1	1	1	1	1	2	2	1	10	73	14.5	45	46	1	3	p2	1	3	3	5	1	3	8000	2000
10	suganya	10.11.2015	7	2	1	1	1	1	2	2	7	22	2	1	1	1	1	0	0	0	1	1	2	2	1	4	4	2	1	2	3	1	2	1	0	1	1	1	2	2	2	5.2	56	13	41.5	39.5	2	3	p2	2	2	4	5	3	2	12,000	1714
11	srinivasan	11.10.2015	9	1	1	1	1	1	2	1	4	24	2	1	1	2	2	1	0	4	1	2	1	2	1	2	2	2	2	1	4	1	2	1	1	1	1	1	2	2	2	8	62	13	42.5	42	1	3	p3	2	3	3	5	1	2	8000	2000
12	saikumar	17.10.2014	20	1	1	1	1	1	2	1	4	22	3	1	1	2	2	1	0	5	1	1	1	2	1	2	2	2	2	1	3	1	2	1	1	1	1	1	1	2	2	8.5	76	12.5	44	44	2	2	2	2	3	3	5	1	2	8,000	2000
13	kanga	2.10.20	8	2	1	1	1	1	2	1	5	26	4	1	1	2	3	2	0	6	1	1	1	2	1	1	4	2	2	1	3	1	2	1	1	1	1	1	1	2	2	6.2	68	13	42	43	1	1	3	2	2	4	5	1	2	8000	1600

		15																																																							
14	dinesh	16.10.2014	20	1	1	2	1	1	2	1	4	22	5	2	1	1	2	3	0	0	1	1	2	2	1	4	4	2	2	2	2	2	1	1	1	1	1	1	2	2	1	8	73	13.5	44	45	3	3	2	2	3	3	4	3	2	8,000	2000
15	monasha	11.9.2015	10	2	1	1	1	1	1	1	4	21	4	1	1	2	2	2	0	6	1	1	2	1	1	3	2	2	2	1	3	1	2	1	2	1	1	1	2	2	2	7.6	60	11.5	39	38	2	3	p3	3	4	4	5	1	2	7000	1750
16	thilak	26.8.2014	22	1	1	2	1	2	2	2	9	24	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	3	1	2	1	1	1	1	1	1	2	2	1	12	77	16	48	47	p1	3	p3	1	1	3	1	5	5	20,000	2222
17	lunesh	20.8.2014	22	1	1	2	1	2	2	1	4	26	3	2	1	1	2	0	1	0	1	1	2	1	1	4	4	2	2	3	1	2	1	1	1	1	1	1	2	2	1	14	80	16	47	50	p1	2	p4	1	1	2	1	4	4	15,000	3750
18	akash	30.5.2014	24	1	1	2	1	1	2	1	3	25	4	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	2	2	2	2	1	1	1	1	1	1	2	2	1	14	82	16	46.5	49.5	p1	2	p4	1	2	1	1	6	6	30,000	10,000
19	nidhushashree	19.9.2015	10	2	1	2	1	1	2	1	4	28	3	2	1	1	2	2	0	0	1	1	1	2	1	4	4	2	1	2	3	2	1	1	2	1	2	1	2	2	2	7.7	67	14	42.5	41	1	1	p1	1	2	3	2	4	3	12,000	3,000
20	jeevanesh	20.1.2015	18	1	1	2	1	1	2	1	4	23	4	2	1	2	1	0	0	7	1	1	1	2	1	4	4	2	2	2	3	2	1	1	1	1	1	1	2	2	1	8.1	74	12.5	45	43	2	2	2	2	2	3	3	3	3	12,000	3,000
21	rithu	16.9.20	10	1	1	2	1	1	2	1	4	22	4	2	1	2	2	2	0	5	1	1	1	2	1	4	4	2	2	1	3	2	1	1	1	1	1	1	2	2	2	7.5	62	12.8	43.5	38	1	3	p2	2	2	2	4	4	3	15,000	3,750

		15																																																							
22	samuvel	26.9.2015	10	1	1	2	1	1	2	1	3	24	5	2	1	1	1	0	0	5	1	1	1	2	1	4	4	2	2	1	3	2	2	1	2	1	1	1	2	2	2	6.6	65	13	43	42	2	3	1	2	2	2	2	3	3	10,000	3,333
23	varun	25.3.2015	15	1	1	2	1	1	2	1	5	28	4	2	1	1	2	2	0	4	1	1	1	2	1	4	4	2	2	2	3	2	2	1	1	1	1	1	2	1	1	7	71	14	45.5	42	3	3	2	1	2	4	4	4	3	8,000	1,600
24	madhumitha	21.9.2015	10	2	1	2	1	1	2	1	4	26	4	2	1	2	2	2	0	3	1	1	1	1	1	4	4	2	2	1	2	2	1	1	2	1	1	1	2	2	2	7.5	66	13	43	42	1	2	p1	2	1	3	4	4	3	8,000	2,000
25	saran	1.9.2015	10	1	1	2	1	1	2	1	5	26	5	2	1	1	1	0	0	0	1	1	1	2	1	4	4	2	2	1	1	2	1	2	2	1	1	1	2	1	1	7.3	69	13.5	44	43	1	1	2	2	2	2	1	5	7	30,000	6,000
26	oviyapriya	5.9.15	10	2	1	2	1	2	2	1	3	23	4	2	1	1	1	0	0	3	1	1	2	1	1	4	4	2	2	2	1	2	1	1	2	1	1	1	2	1	2	6.6	43.5	12	43.5	42.5	2	3	p4	3	1	1	1	5	6	20,000	6,666
27	jaijaswanth	21.1.2015	18	1	1	2	1	1	2	1	4	22	4	2	1	2	1	0	0	5	1	1	1	2	1	4	4	2	2	1	1	2	1	1	1	1	1	1	2	2	2	10	77	15	44.5	45.6	1	2	p1	1	3	2	1	5	4	15,000	3,750
28	danush	20.1.2015	18	1	1	2	1	1	2	1	3	23	3	2	1	1	1	0	0	6	1	1	2	2	1	4	4	2	2	1	3	2	1	1	1	1	1	1	2	1	1	9	75	13	45.5	45	1	2	1	2	2	3	2	3	3	8,000	2,666
29	dharthika	22.9.2015	9	2	1	2	1	1	2	2	6	28	5	2	2	4	2	0	0	0	1	2	1	2	1	4	4	2	1	2	2	2	2	1	0	1	1	2	2	1	2	7.4	68	16	41	44.5	1	p1	1	1	3	3	3	5	3	15,000	2,500
30	gowt	23.1	9	1	1	2	1	1	2	2	8	24	4	2	1	1	2	1	0	0	1	1	2	1	1	3	3	2	2	3	2	2	1	1	1	1	1	1	2	2	2	10.2	68	17	47	47	p1	1	p4	1	p2	2	1	6	7	40,0	5,00

	ham	0.2015																																																						00	0
31	prajesh	16.9.2015	10	1	1	2	1	1	2	1	5	23	5	2	1	1	1	0	0	5	1	1	2	1	1	3	3	2	2	3	1	2	1	1	2	1	1	1	2	2	2	8.4	72	13.5	45	43	1	1	1	2	1	4	2	4	3	8000	1600
32	chrishna	19.9.2015	10	2	1	2	1	2	2	2	6	30	4	2	1	1	1	0	0	0	1	2	1	2	1	4	3	2	2	3	1	2	1	1	2	1	0	1	1	1	2	9.5	72	15	46	46	p1	1	p2	1	p2	2	1	6	7	20000	3333
33	priyadharshini	10.9.2015	10	2	1	2	1	2	2	1	3	34	1	2	1	2	1	0	0	0	1	2	1	2	1	4	4	2	2	3	2	2	2	1	2	1	1	1	2	2	2	7.7	65	14	42	44	1	2	p2	1	2	3	3	2	2	8000	2666
34	harshitha	6.10.2015	9	2	1	2	1	1	2	1	3	23	3	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	2	3	2	2	1	1	2	1	1	1	2	2	2	6.8	67	13	41	39	1	1	1	2	3	3	2	4	2	8000	2666
35	miruthula	7.11.2015	8	2	1	2	1	1	2	1	4	28	4	2	1	1	2	1	0	0	1	1	1	2	2	0	3	2	3	1	2	2	1	1	2	1	1	1	2	2	2	6.2	68	11.5	40	41	1	1	1	3	3	3	1	5	4	10000	2500
36	dhakshik	14.6.2015	24	1	1	2	1	2	2	1	3	28	3	2	1	1	1	0	0	6	1	2	1	2	1	4	4	2	2	3	2	2	1	1	2	1	1	1	2	2	2	8.5	77	13	46	44	2	3	2	2	2	2	3	3	3	12000	4000
37	nalin	3.10.2014	20	1	1	2	2	1	2	1	3	29	4	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	2	3	2	2	2	1	1	1	1	1	2	2	2	13	87	14	47	47	p1	p1	p2	1	1	2	1	5	5	13000	4333
38	arikak	27.6.	12	2	1	2	1	2	2	1	4	27	3	2	1	2	1	0	0	0	1	2	1	2	2	0	4	2	4	4	2	2	1	1	2	1	1	1	2	2	2	8	75	12	44.5	45	1	p1	2	3	1	3	2	5	5	10000	2500

	umari	2015																																																							
39	lakshna	31.12.2014	19	2	1	2	1	2	2	1	5	31	5	1	1	1	2	4	0	0	1	1	2	1	1	4	4	2	2	3	1	2	1	0	1	1	1	1	1	1	1	8.2	78	13	46	43	2	1	2	2	1	1	1	5	5	35000	7000
40	yahavi	20.9.2015	10	2	2	2	1	1	2	1	3	23	3	2	1	1	1	0	0	6	1	1	2	1	1	4	4	2	2	3	2	2	1	1	2	1	1	1	2	1	2	8.4	69	15	44	45	1	1	p1	1	1	2	1	6	6	13000	4333
41	abarna	19.8.2014	23	2	1	2	2	1	2	1	3	34	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	3	2	2	2	1	1	1	1	1	2	2	2	9	80	13	44.5	45	1	1	1	2	2	2	1	3	3	10000	3333
42	deepika	22.5.2014	13	2	1	2	1	2	2	2	7	24	5	1	1	2	1	0	0	5	1	1	2	2	1	4	4	2	2	2	3	2	1	1	2	1	1	1	2	2	1	10	78	14	43.8	46	p1	p1	p1	1	1	4	4	3	2	10000	1428
43	gobika	26.5.2014	24	2	1	2	1	1	2	1	3	21	4	2	1	2	1	0	0	5	1	1	2	2	1	3	3	2	2	3	3	2	2	1	1	1	1	1	2	2	1	11.5	84	15	44	46	p1	1	p1	1	3	3	4	3	2	8000	2666
44	subesh	25.5.2014	24	1	1	2	1	2	2	1	3	24	5	2	1	2	1	0	0	4	1	1	2	1	1	3	3	2	2	3	2	2	2	1	1	1	1	1	2	2	1	13	85	15	47	49	p1	1	p2	1	1	3	4	3	2	8000	2666
45	kalthika	14.1.2014	18	2	1	2	1	2	2	1	3	24	4	2	1	2	1	0	0	0	1	2	2	2	1	3	3	2	2	3	2	2	2	1	2	1	1	1	2	2	2	10	78	13.5	45	43	1	1	p1	2	1	3	4	4	2	8000	2666
46	harini	20.12.201	6	2	1	1	1	1	2	1	4	28	4	2	1	1	2	2	0	0	1	1	1	1	1	1	3	2	1	2	1	2	1	1	2	1	1	1	2	2	2	5.8	62	13	40	43	1	1	1	2	2	3	2	4	3	10000	2500

		5																																																							
47	yoghesh	22.12.2014	18	1	1	2	1	2	2	1	3	28	3	2	1	1	1	0	0	0	1	2	1	2	1	4	4	2	2	3	1	2	1	1	1	1	1	1	1	1	1	10.5	84	15	48	51	1	p1	1	1	p1	1	1	6	6	20000	6666
48	eswhin	3.6.2015	12	1	1	2	1	2	2	1	4	25	4	2	1	1	1	0	0	0	1	2	1	2	1	4	4	2	3	3	2	2	2	1	1	1	1	1	2	2	2	7.5	73	12	45	43	2	1	3	3	1	3	2	4	2	8000	2000
49	thangamani	18.9.2015	10	2	1	2	1	2	2	1	3	20	5	2	1	1	1	0	0	0	1	2	1	1	1	4	4	1	2	3	1	2	1	1	2	1	1	1	2	2	2	7.5	73	14	43	42	1	p1	2	1	1	1	1	6	6	20000	6666
50	perumitha	27.8.2015	11	2	2	2	2	2	2	1	3	23	4	2	1	1	1	0	0	4	1	1	2	1	1	4	4	2	3	2	3	2	1	1	1	1	1	1	2	1	2	7.4	70	13	43	41	1	1	1	2	2	2	2	4	3	10000	3333
51	rithesh	9.2.2015	16	1	1	1	1	1	2	1	3	28	5	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	3	2	2	2	1	1	2	1	1	1	2	2	2	9.8	76	14	45	46	1	1	p1	1	2	3	2	4	3	12000	3000
52	jeevanesh	20.1.2015	17	1	1	2	1	1	2	1	4	23	2	2	1	1	1	0	0	0	1	1	1	2	1	4	4	2	3	2	2	2	2	1	2	1	1	1	1	1	1	8.1	74	12.5	45	43	2	2	2	2	2	3	2	3	3	12000	3000
53	jothisha	16.6.2014	24	2	1	1	1	1	2	1	4	29	3	2	1	2	2	3	0	0	1	1	2	1	1	3	4	2	3	2	2	2	2	1	1	1	1	1	2	2	2	8.7	80	12.5	44.5	43	2	1	2	2	2	3	3	2	2	8000	2000
54	vashini	1.6.2014	24	2	2	2	1	2	2	1	5	25	4	2	1	1	2	0	4	0	1	1	2	1	1	4	4	2	2	2	2	1	2	1	1	1	1	1	2	2	1	12	82	16	45	48	p1	1	p2	1	2	3	2	4	3	10000	2000
55	sivag	20.9	21	1	1	1	1	1	2	1	5	23	5	2	1	1	1	0	0	0	1	2	1	1	1	4	4	2	3	3	2	2	1	1	1	1	1	1	1	1	2	9	77	13	45	44	2	3	1	2	3	3	3	3	4	1500	3000

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56	rukwin	17.9.2015	9	1	1	2	1	1	2	1	3	21	2	2	1	1	1	0	0	0	1	2	1	2	1	1	3	2	1	2	1	2	2	1	2	1	1	1	2	2	2	7.7	68	13	43.5	45	1	1	1	2	2	3	2	4	2	8000	2666
57	aswin	30.5.2014	24	1	1	2	1	2	2	1	4	25	4	2	1	2	2	4	0	0	1	1	2	1	1	4	4	2	2	2	3	2	2	1	2	1	1	1	2	1	2	10	82	14	45.5	45	1	1	1	1	3	2	1	6	5	20000	500
58	shiva	20.6.2014	24	1	1	1	1	1	2	1	3	23	5	2	1	2	1	0	0	5	1	2	1	2	2	0	3	2	2	2	2	2	1	1	1	1	1	2	0	2	2	7.7	75	12	45	43	3	3	3	3	3	2	2	5	2	10000	3333
59	KISHORE	1.6.2014	24	1	1	2	1	1	2	1	3	24	4	1	1	2	1	0	0	7	1	1	2	2	1	4	4	2	2	2	2	2	2	1	1	1	1	2	2	2	1	7.8	75	12	45	43	3	3	3	3	3	3	2	5	3	8000	2666
60	pongulali	17.6.2015	12	2	1	2	1	1	1	1	3	30	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	2	3	2	2	1	1	1	1	2	2	2	1	7.5	74	12.5	43	41	1	1	2	2	2	3	3	3	3	8000	2666
61	karthik	12.5.2014	23	1	1	2	1	1	2	1	4	27	2	1	1	2	2	0	1	5	1	2	2	2	1	4	4	2	2	1	4	1	2	1	1	1	1	1	2	2	2	11.6	85	13	47	47	1	1	p1	2	1	4	5	1	2	6000	1500
62	mownika	27.5.2014	24	2	1	2	1	2	2	1	3	30	5	2	1	1	1	0	0	5	1	1	1	1	1	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	9.5	82	14	48	45	1	1	2	1	p1	2	2	5	5	12000	4000
63	yafitha	17.8.2014	22	2	1	2	1	2	2	1	3	24	4	2	1	1	1	0	0	0	1	2	1	2	2	0	1	2	2	2	2	2	2	1	2	1	1	1	2	2	1	9.5	82	15	48	46	1	1	2	1	p1	3	3	4	2	7000	2333

64	kavyashree	8.10.2014	20	2	1	2	1	2	2	1	3	25	3	2	1	1	1	0	0	9	1	2	1	2	1	3	3	2	2	2	2	2	1	1	1	1	1	1	2	2	2	7.8	77	11.5	44.5	41	2	1	3	3	2	2	2	4	3	1000	333
65	shanmugapriyan	5.6.2014	24	1	1	2	1	1	2	1	3	23	6	2	1	1	1	0	0	5	1	1	1	1	1	3	3	2	2	2	2	2	2	1	2	1	1	1	2	1	2	9	81	14	46	44	2	2	2	1	2	3	4	3	2	6000	2000
66	nakshitra	15.6.2014	24	2	1	2	1	2	2	1	3	25	5	2	1	1	1	0	0	7	1	1	1	2	1	3	3	2	2	1	2	2	1	1	2	1	1	1	2	2	1	9	77	13	42.5	41	1	2	1	2	4	1	1	5	5	30000	10000
67	ilakiya	3.6.2014	23	2	1	2	1	2	2	1	4	24	5	2	1	2	2	3	0	4	1	1	2	1	1	4	4	2	2	2	2	1	1	1	1	1	1	1	2	2	1	9	80	13	46	44	1	1	2	2	1	3	4	4	2	8000	2000
68	geevitha	2.7.2014	24	2	1	2	1	1	2	1	3	28	4	2	1	2	1	0	0	8	1	1	2	2	1	4	4	2	2	2	1	2	2	2	1	1	1	1	2	2	2	9	84	13	46	46	1	1	3	2	1	3	3	3	2	8000	2666
69	lakhashree	4.12.2014	18	2	1	2	1	3	1	1	3	20	5	2	1	1	1	0	0	5	1	1	2	1	1	3	4	2	2	2	2	2	2	1	2	1	1	1	2	2	1	8	77	12.5	44.5	43	2	1	2	2	2	2	2	3	2	12000	4000
70	motchhitha	25.6.2014	24	2	1	1	1	2	1	1	6	28	4	2	1	1	1	0	0	0	1	1	2	1	1	3	3	1	3	2	1	2	1	1	1	1	1	1	1	1	1	10	92	15	46.5	48	1	p1	3	1	1	1	1	7	6	40000	6666
71	rohith	7.7.2015	12	1	1	2	1	2	2	1	4	27	4	2	1	2	2	2	0	4	1	1	2	1	1	4	4	2	2	2	2	2	1	1	2	1	1	1	2	2	2	10	82	15	48	46.5	p1	p2	1	1	p2	3	2	4	3	10000	2500
72	pra	1.5	23	2	2	2	1	1	2	2	7	23	3	2	1	2	1	0	0	7	1	1	2	2	1	4	4	2	2	2	2	2	1	1	1	1	1	1	2	2	1	9	80	13.	46	45	1	1	2	2	1	2	1	5	5	250	357

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73	kuralarasi	20.8.2014	22	2	1	2	1	2	2	2	8	28	4	2	1	2	1	0	0	7	1	1	2	1	1	4	4	2	2	2	1	2	1	1	1	1	1	1	2	2	2	9	78	14	47	45	1	1	1	1	p4	3	2	4	4	18000	2250
74	athianhause	12.10.2014	20	1	1	2	1	1	2	1	3	30	5	1	1	2	1	0	0	0	1	1	1	1	1	3	3	2	2	1	2	2	1	1	2	1	1	1	1	1	1	10	80	13	47	45	1	1	1	2	1	1	1	6	5	45000	15000
75	brindashree	22.12.2014	18	2	1	2	1	1	2	1	3	25	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	2	1	2	1	1	2	1	1	1	1	1	1	10	78	14	45	46	1	1	p1	1	2	2	1	6	6	15000	5000
76	sabarinathan	17.7.2014	24	1	1	2	1	1	2	1	3	23	5	2	1	2	1	0	0	8	1	1	2	2	1	4	4	2	1	1	2	2	2	1	2	1	1	1	2	2	2	9.5	82	13	46	44	2	2	2	2	2	2	2	4	2	10000	3333
77	samiksha	6.10.2014	20	2	1	1	2	2	1	1	3	28	3	2	1	1	1	0	0	7	1	2	1	2	1	3	3	2	2	2	2	2	1	1	2	1	1	1	2	2	1	8	76	12.5	44	45	2	2	2	2	1	2	1	5	5	12000	4000
78	mano	12.12.2014	20	1	1	2	1	2	2	1	4	26	4	2	1	1	2	2	0	6	1	1	2	2	1	3	3	2	2	2	3	2	1	1	2	1	1	1	2	2	1	10	76	15	47	47	1	2	p1	1	1	3	1	5	5	10000	2500
79	nithesh	10.12.2015	7	1	1	2	1	2	2	2	7	25	3	2	1	1	1	0	0	0	1	1	2	2	1	3	3	1	1	3	1	2	2	1	2	1	1	1	1	1	2	6.5	64	13	47	41	1	2	p1	2	p3	4	2	4	2	12000	1714
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81	jayashree	4.1.2015	6	2	1	2	1	1	2	1	3	23	3	2	1	2	1	0	0	0	1	1	2	1	1	4	4	1	1	2	2	1	2	1	2	1	1	1	2	2	2	9	74	13.5	45	45	p1	p3	1	2	p3	3	4	4	2	8000	2666
82	aswin	11.10.2014	20	1	1	2	1	1	2	1	5	23	4	2	1	1	2	2	0	0	1	2	1	2	1	3	3	1	2	2	2	2	1	1	1	1	1	1	2	2	2	9	75	14	46	47	2	3	1	1	2	3	2	4	2	8000	2000
83	malathi	18.12.2015	20	2	1	2	1	2	2	1	4	27	5	2	1	1	2	1	0	5	1	2	1	2	1	4	4	2	2	3	1	2	1	1	2	1	1	1	2	2	1	8	74	13	45	45	3	2	3	2	2	3	2	4	2	12000	3000
84	harishjoshwa	17.9.2015	9	1	1	2	1	1	2	1	4	28	3	2	1	1	2	4	0	0	2	2	1	2	2	0	3	1	2	2	2	1	2	1	2	1	1	1	2	1	2	5	69	10	40	38	3	1	4	3	4	3	4	1	2	8000	2000
85	edwin	26.6.2015	12	1	1	2	1	2	2	1	4	28	4	2	1	2	2	2	0	0	1	1	2	1	1	4	4	2	3	2	2	2	1	1	2	1	1	1	2	2	2	12	90	14	46	46	p1	p3	1	1	1	3	4	4	2	8000	2000
86	aarthi	20.10.2015	9	2	1	2	1	2	2	1	4	27	5	2	1	1	2	3	0	0	1	1	1	1	1	4	4	2	2	2	2	2	2	1	2	1	1	2	2	2	2	9	68	13	41	40	p1	1	p2	2	3	3	4	4	2	8000	2000
87	deepika	15.10.2014	20	2	1	1	1	1	2	1	5	25	3	0	1	1	3	2	0	7	1	1	2	2	1	4	4	3	2	2	3	2	2	1	1	1	1	1	2	2	2	7	72	13	43	42	3	3	3	2	3	3	4	4	2	12000	2400
88	pras	23.2	16	1	1	1	1	1	2	1	3	25	4	2	1	1	4	2	0	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	2	8.5	76	12			1	1	2	1	1	4	5	1	2	8000	1600

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89	ramkumar	19.12.2014	18	1	1	1	1	2	1	1	3	30	3	2	1	2	1	0	0	0	1	2	1	2	1	4	4	2	2	2	3	1	2	1	2	1	1	1	2	2	1	10	74	15	45	47	1	2	p1	1	2	3	5	4	2	8000	2666
90	durga	10.9.2015	9	2	1	2	1	2	2	1	3	24	4	2	1	1	1	0	0	0	1	1	2	1	1	4	3	2	2	2	2	1	2	1	2	1	1	1	2	2	2	7.5	65	13.5	46	41	1	2	p1	2	p2	2	1	5	5	15000	5000
91	harish	17.10.2014	20	1	1	3	1	2	1	1	3	21	2	2	1	2	1	0	0	0	1	1	2	1	1	4	4	2	2	4	2	2	2	1	1	1	1	1	2	2	2	9	78	13	46	47	2	2	2	2	2	2	2	3	2	12000	400
92	sherlin	1.12.2014	18	2	1	2	1	2	2	1	4	27	2	2	1	1	2	3	0	5	1	1	1	2	1	3	3	2	2	3	1	1	1	1	2	1	1	1	2	2	2	9.6	78	14	47	43	1	1	1	1	p1	3	3	4	2	10000	2500
93	shamaulla	4.7.2014	24	1	1	2	1	1	2	2	7	22	4	2	1	1	2	2	0	5	1	1	1	1	1	2	3	2	2	3	2	1	2	1	1	1	1	1	1	2	2	11	85	15	46	48	1	1	1	1	2	4	2	4	3	10000	1428
94	roshan	24.10.2014	20	1	1	1	1	1	2	1	5	24	5	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	3	2	2	2	1	1	2	1	1	1	2	2	2	8	75	12.5	46.5	41	3	3	2	2	1	3	2	4	2	15000	3000
95	JOHNISH	2.9.2015	9	1	1	2	1	1	2	1	4	24	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	3	2	1	1	1	2	1	1	1	2	2	2	7.3	67	14	42	40	1	2	1	1	3	3	3	4	2	12000	3000
96	SAISANCH	3.8.2014	22	2	1	2	1	2	2	1	4	21	2	2	1	1	2	1	0	0	1	1	2	1	1	4	4	2	2	3	1	1	1	1	2	1	1	1	2	2	1	12	89	15	45	46	p1	p1	1	1	2	3	1	5	4	12000	3000

	ANA																																																								
97	SIVANI	1.6.2014	24	2	1	2	1	1	2	2	5	24	4	1	1	1	1	0	0	0	1	1	1	2	1	3	3	2	2	3	1	2	2	1	1	1	1	2	2	2	2	9	80	12.5	45	44	1	1	2	2	2	3	2	4	2	15000	3000
98	tamilarasi	4.9.2015	9	2	1	2	1	2	1	1	4	23	2	1	1	1	2	1	0	0	1	1	2	2	1	4	4	2	2	4	2	2	2	1	2	1	1	1	2	2	2	7		13.5	42	42	1	1	2	2	2	3	2	5	3	12000	3000
99	haran	15.2.2015	16	1	1	2	1	1	2	1	3	23	2	2	1	1	2	1	0	0	1	1	2	2	1	4	4	2	2	4	2	2	2	1	2	1	1	1	2	2	2	9.7	76	15	46	45	1	1	p1	1	1	3	4	4	2	12000	3000
100	monisha	26.8.2014	22	2	1	2	1	1	2	1	3	21	4	2	1	2	1	0	0	7	1	2	1	2	2	0	3	2	2	2	2	2	1	1	2	1	1	1	2	2	2	8.3	81	12.5	45	43	2	1	3	2	2	3	2	5	3	8000	2666
101	poojashree	29.1.2015	18	2	1	2	1	2	2	1	3	22	3	2	1	1	1	0	0	6	1	2	1	2	2	0	3	1	1	2	1	1	2	1	2	1	1	1	2	2	2	6	67	12	43	39	3	3	3	3	3	2	2	4	2	10000	3333
102	nithesh	8.4.2015	14	1	1	2	1	1	2	1	4	25	4	2	1	1	1	0	0	4	1	1	2	2	1	4	4	2	2	1	3	1	2	1	2	1	1	1	2	2	1	8.4	75	13	46	45	1	1	2	2	1	3	2	5	3	8000	2000
103	manikandan	25.5.2015	12	1	1	2	1	1	1	1	4	26	3	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	2	1	2	1	2	1	2	1	1	1	2	2	2	8.8	79	14	45	45	1	p1	2	1	1	3	3	4	2	8000	2000
104	safiya	20.10.2014	20	2	1	2	1	2	2	1	3	25	4	2	1	1	1	0	0	7	1	2	1	2	1	4	4	2	2	1	2	1	1	1	2	1	1	1	2	2	2	9.3	76	12.5	44	43	1	2	1	2	2	3	2	14	3	8000	2666
105	mad	13.	18	1	1	2	1	2	2	1	3	30	5	2	1	1	1	0	0	5	1	1	2	2	1	1	1	1	2	2	1	2	1	1	2	1	1	1	2	2	2	9.4	81	12.	45	47	1	1	2	2	2	3	3	2	3	6000	200

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106	thirisha	8.7.2015	12	2	1	2	1	1	2	1	4	30	4	2	1	1	3	2	0	0	1	1	2	2	1	_	4	2	2	1	3	2	2	1	2	1	1	1	2	2	2	10	85	16	46	46	p1	p3	2	1	p1	3	2	4	3	8000	2000
107	ramana	25.12.2015	6	1	1	2	1	1	2	1	3	23	3	2	1	1	1	0	0	0	1	2	1	2	1	4	4	2	2	2	1	2	1	1	2	1	1	1	2	2	2	7.4	71	13	41	38	1	p1	2	2	2	3	3	5	3	8000	2666
108	poojashree	12.1.2015	6	2	1	1	1	2	1	1	4	26	4	2	1	1	2	2	0	0	1	1	2	1	1	3	3	1	1	2	1	2	1	1	2	1	1	1	2	2	2	8.5	75	12	45	42	p1	p3	1	3	p3	2	1	4	5	15000	3333
109	veera	1.12.2014	18	1	1	2	1	1	2	1	4	28	2	2	1	2	3	2	0	0	1	2	1	2	2	0	2	2	2	2	3	1	2	1	1	1	1	1	2	2	2	8.5	78	13	46	47	2	1	2	2	2	3	4	3	2	8000	2000
110	justin	6.6.2014	24	1	1	1	1	2	2	1	3	28	2	2	1	2	2	2	0	0	1	1	1	2	1	3	3	2	2	1	3	1	2	1	1	1	1	1	2	2	2	8	78	11	45	44	3	3	3	3	3	3	4	4	2	8000	2000
111	sakhthi	5.12.2014	18	1	2	2	1	1	2	1	4	28	5	2	1	1	2	1	0	0	1	1	1	2	1	4	4	2	2	2	4	2	2	1	2	1	1	1	2	2	2	10	75	14	44.5	45	1	2	p1	3	3	3	4	4	4	10000	2500
112	lakshmipriya	6.11.2015	7	2	1	2	1	1	2	1	5	30	4	1	1	1	3	2	0	0	1	1	2	1	1	4	4	2	1	2	1	2	1	1	2	1	1	1	2	2	1	10	77	13	46	42	p2	p3	p1	2	p3	4	2	3	2	8000	1600
113	joyesh	24.5.20	24	1	1	2	1	2	2	1	3	28	4	2	1	1	1	0	0		1	2	1	2	1	5	5	2	2	1	2	1	1	1	1	1	1	1	2	2	2	9	82	12	43.5	42	2	1	3	3	4	3	2	4	3	8000	2666

		14																																																							
114	karthik	8.6.2014	24	1	1	1	1	3	2	1	3	24	5	2	1	1	1	0	0	9	1	1	2	2	1	4	4	2	2	2	3	2	1	1	1	1	1	1	2	2	1	9.6	80	13	44	45	2	2	1	2	2	3	3	1	2	6000	2000
115	archna	3.9.2014	22	2	1	2	1	1	2	2	7	25	3	2	1	1	2	2	0	0	1	1	2	2	1	4	4	2	2	2	3	1	1	1	2	1	1	1	2	2	2	7.8	76	12	45	41	2	2	3	3	2	4	3	3	2	11000	1571
116	hansika	16.6.2015	12	2	1	2	1	2	2	1	3	24	4	2	1	1	1	0	0	5	1	1	2	2	1	2	2	2	2	1	2	2	1	1	2	1	1	1	2	2	2	7.4	70	11.5	43	43	1	1	2	3	2	2	4	4	2	10000	3333
117	joshwar	31.8.2014	22	1	1	2	1	2	2	1	3	24	3	2	1	1	1	0	0	5	1	1	2	1	1	4	4	2	2	4	2	2	2	1	2	1	1	1	2	2	1	9.5	83	13	46	45	1	1	2	2	2	2	1	5	5	15000	5000
118	janaranjani	28.9.2015	9	2	1	1	2	2	2	1	5	29	4	2	1	2	1	0	0	0	1	2	1	2	1	1	1	2	3	2	2	2	1	1	2	1	1	1	2	2	1	7.15	67	13.5	41.5	38	1	1	p1	2	2	2	2	5	5	20,000	4000
119	monoshree	16.11.2014	18	2	1	2	1	1	2	1	3	23	3	2	1	2	1	0	0	0	1	1	2	2	1	4	4	2	2	2	1	1	1	1	1	1	1	1	2	2	2	9.5	78	13.5	44	43	1	p2	1	2	2	2	1	6	3	12000	4000
120	dhanya	19.11.2015	8	2	1	2	1	2	2	1	4	24	3	2	1	1	2	3	0	0	1	1	2	1	1	2	4	2	2	2	1	1	2	1	2	1	1	1	1	1	2	8	61	15	43	44	p1	3	p3	1	1	3	3	4	2	10000	2500
121	jowsh	11.5.2015	13	1	1	2	1	1	1	2	5	24	4	1	1	1	2	3	0	0	1	1	2	1	1	3	4	1	2	2	1	2	2	1	2	1	1	1	2	2	2	9	73	13	45	45	1	1	p1	2	2	4	4	3	2	8000	1600
122	yur	3.6	12	1	1	2	1	1	2	1	3	24	3	2	1	1	1	0	0	0	1	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	2	2	1	8	64	15	44	45	1	3	p2	1	2	3	4	3	2	900	300

	an	.2015																																																					0	0
123	aswin	10.10.2014	20	1	2	2	1	2	2	1	4	25	4	2	1	1	2	1	0	0	1	1	1	2	1	3	3	2	2	1	1	1	1	1	2	1	1	1	2	2	1	9	71	15	45	46	2	3	p1	1	3	2	2	5	5	14000	3333
124	reshimithan	13.9.2014	22	1	1	2	1	3	2	1	3	28	5	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	1	1	1	1	1	1	1	1	1	2	2	2	10	75	14	46	48	1	3	p1	1	2	1	1	5	5	20000	6666
125	gayathri	11.11.2015	8	2	1	2	1	2	1	1	4	29	3	1	1	1	2	4	0	0	1	1	2	1	1	4	0	0	2	2	2	2	2	1	2	1	1	1	2	2	2	6	64	14	41	41	2	1	2	1	2	2	2	4	2	15000	3750
126	dharsan	29.12.2015	7	1	1	2	1	2	2	2	6	29	2	2	1	1	2	3	0	0	1	1	2	1	1	3	4	1	1	2	1	1	2	1	2	1	1	1	1	1	2	8	61	15	43	43	1	3	p3	1	1	4	4	4	2	10000	1666
127	pratheshsha	31.7.2014	24	2	1	1	1	2	2	1	3	22	3	2	1	1	1	0	0	0	1	1	2	1	1	5	5	2	2	2	2	1	1	1	1	1	1	1	2	2	1	10		16	46	48	1	1	1	1	1	2	3	3	2	10000	3333
128	devendran	8.11.2015	8	1	1	2	1	1	1	1	4	21	4	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	2	2	1	1	1	1	2	1	1	1	1	1	2	9	71	16	45	44	p1	p1	p1	1	p1	2	3	4	2	15000	3750
129	priyadharshini	1.1.2016	6	2	1	2	1	2	2	1	4	23	5	2	1	1	2	2	0	0	1	1	2	1	1	3	3	1	1	2	1	1	2	1	2	1	1	1	2	2	2	5	61	12	40	38	2	2	3	3	2	3	3	3	2	8000	2000
13	ma	13	19	2	1	2	1	1	2	1	3	26	5	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	2	2	1	1	1	2	1	1	1	2	2	2	9.	79	14	46	47	1	1	1	1	1	3	4	4	2	80	26

0	dhumitha	.11.2014																																								5														00	66
131	sathana	20.8.2014	22	2	1	2	1	1	2	1	4	26	6	2	1	1	2	4	0	0	1	1	2	1	1	5	4	2	2	3	2	2	2	1	1	1	1	1	2	2	1	9	75	14	42	44	1	3	1	1	4	2	4	3	2	15000	3750
132	sharmila	2.3.2015	15	2	1	2	1	1	2	1	3	23	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	2	3	1	1	1	2	1	1	1	1	1	2	8	71	16	43	45	1	2	1	1	2	3	4	4	3	8000	2666
133	gopinath	12.5.2015	13	1	1	1	1	2	2	1	4	30	3	1	1	1	2	1	0	0	1	1	2	1	1	4	3	2	2	2	3	1	1	1	2	1	1	1	2	2	1	8	72	15	44	45	1	2	2	1	2	3	3	4	3	8000	2000
134	SARULATHA	9.7.2014	24	1	1	2	1	1	2	2	7	22	5	2	1	1	2	2	0	0	1	1	2	1	1	4	3	2	2	2	2	1	1	1	1	1	1	1	2	2	1	11	85	15	46	47	1	1	1	1	2	2	2	4	2	10000	3333
135	priyadharshni	25.11.2014	19	2	1	2	3	2	2	1	4	25	3	2	1	1	2	2	0	0	1	1	2	1	1	3	3	2	2	1	2	1	2	1	2	2	1	1	2	2	2	6	75	13	41	44	3	2	4	2	4	4	5	1	2	6000	1500
136	yogavarthan	12.12.2015	6	1	1	2	1	2	2	1	4	33	3	2	1	1	2	1	0	0	1	1	1	1	1	4	4	2	2	2	2	2	1	1	2	2	2	1	1	1	2	9	63	15	42	43	p1	2	p4	1	2	3	4	4	3	8000	2000
137	subiksha	3.12.2015	18	2	1	2	1	2	2	1	3	22	4	2	1	1	1	0	0	5	1	1	2	1	1	4	4	1	2	1	1	2	1	1	1	1	1	2	0	2	1	9	82	13	44.5	45.5	1	p1	2	2	2	3	4	2	3	6000	2000
138	ranja	1.6.	18	2	1	1	1	1	1	2	4	26	5	2	1	1	2	1	0	4	1	2	1	2	1	3	3	2	2	1	2	2	2	1	1	1	1	1	2	2	2	6	67	12	42	40	3	3	3	3	4	3	4	4	2	8000	2000

	na	2015																																																							
139	vanshika	19.5.2015	13	2	1	1	2	1	1	1	4	32	3	2	1	1	2	1	0	3	1	2	1	2	1	3	3	2	2	1	2	2	2	1	1	1	1	1	2	2	2	6.5	60	11.5	45	39	2	3	p2	3	1	4	4	1	2	6000	1500
140	derikraj	16.7.2015	11	1	1	1	2	1	1	1	4	29	2	2	1	2	2	1	0	0	1	1	1	2	1	2	2	2	4	2	1	2	1	1	1	1	1	1	2	2	2	7	64	13	41.5	42	2	3	p1	2	4	4	4	1	2	6000	1500
141	suriya	6.11.2014	19	1	1	2	1	1	2	1	4	25	4	2	1	2	2	1	0	6	1	1	2	2	1	4	4	2	2	1	1	2	2	1	1	1	1	1	2	2	2	9	70	14	45	44	1	3	p2	1	2	3	5	4	3	8000	2000
142	pukalmaran	13.12.2015	6	1	1	2	1	1	2	1	4	25	5	2	1	2	2	2	0	0	1	1	2	1	1	3	3	2	1	3	1	1	2	2	2	1	1	1	1	1	2	7.2	71	14	41.5	40	1	p2	3	1	2	3	2	4	3	9000	2222
143	ajay	17.6.2015	6	1	1	2	1	1	2	1	4	23	2	2	1	2	2	1	0	0	1	1	2	2	1	3	3	1	1	2	1	2	1	1	2	1	1	1	1	1	2	8.5	71	14	44	45	p1	p1	p1	1	p1	2	2	4	3	15000	3333
144	rajamani	16.8.2014	22	1	1	2	1	2	1	1	3	25	5	1	1	1	2	2	0	0	1	2	1	2	1	3	3	2	2	2	2	2	1	1	2	1	1	1	2	2	1	8.5	79	13	45	43	2	2	3	2	3	3	2	4	3	8000	2000
145	dharini	4.6.2014	24	2	1	2	1	2	2	1	4	22	3	2	1	1	2	1	0	0	1	1	2	2	1	3	3	2	2	1	2	1	2	1	2	1	1	1	2	2	1	10	82	14	48	46	1	1	1	1	p1	3	3	4	2	8000	2000
146	aruna	17.11.2014	19	2	1	2	1	1	2	1	4	25	2	2	1	1	2	2	1	0	1	2	1	2	1	4	4	2	2	1	2	2	2	1	2	1	1	1	2	2	1	8.5	74	14	45	42	1	2	1	1	2	3	4	4	3	8000	2000

		19																																																							
147	jaisharan	27.11.2015	7	1	1	2	1	2	2	1	3	31	3	2	1	1	1	0	0	0	1	1	2	1	1	1	1	1	1	3	1	1	1	1	2	1	1	2	0	2	2	8	68	13	42	41	1	1	p1	2	2	3	3	3	2	8000	2666
148	nikhitha	29.9.2014	21	2	1	2	1	2	2	1	3	25	4	2	1	1	2	2	0	0	1	1	2	1	1	4	4	2	2	3	2	2	1	1	2	1	1	1	2	2	1	8	78	13	45	45	2	1	3	2	2	2	1	5	5	13000	4333
149	sanjeevraj	1.9.2015	9	1	1	1	2	2	1	1	3	25	5	1	1	2	1	0	0	0	1	1	1	1	1	1	1	1	1	2	1	2	1	1	2	1	2	1	1	1	2	8.7	70	14	45	42	1	1	p1	1	p1	2	1	5	5	18000	6000
150	madhu	13.11.2014	20	1	1	2	1	1	2	1	3	26	4	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	10	79	15	45	46	1	1	1	1	2	2	2	4	2	10000	3333
151	nibu	23.11.2014	20	1	1	1	1	3	2	1	5	23	5	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	2	2	1	2	1	1	1	2	1	1	1	1	1	9.5	83	14	47	47	1	1	2	1	1	1	1	6	6	40000	8000
152	jaganathan	19.8.2014	22	1	1	2	1	1	2	1	5	25	4	2	1	2	1	0	0	0	1	1	1	1	1	5	5	2	2	3	1	2	1	1	2	2	1	1	2	2	2	9	80	12	46	46.5	2	2	2	3	2	3	2	4	2	15000	3000
153	saran	2.6.2015	18	1	1	2	1	1	2	1	5	22	3	2	1	2	3	1	0	5	2	1	1	2	1	3	3	2	2	1	4	1	2	1	1	2	1	1	1	2	2	8	75	12.5	45	43	2	2	2	2	2	4	5	1	2	6000	1200
154	sanjay	11.8.2015	11	1	1	2	1	1	2	1	3	25	5	2	1	1	1	0	0	0	1	2	1	2	1	5	5	2	3	2	1	2	1	1	2	2	1	1	1	1	2	9.6	73	14.5	45	45	p1	1	p1	1	1	1	3	5	5	20000	6666

155	keerthana	7.7.2015	12	2	1	2	1	2	2	1	3	26	3	2	1	1	1	0	0	0	1	1	2	1	1	3	3	2	2	2	1	2	1	1	2	1	1	1	2	2	2	8	68	13	43	42	1	2	p1	2	2	3	4	4	2	8000	2666
156	hemavarsan	6.5.2014	14	1	1	2	1	2	2	1	4	35	5	2	1	1	1	0	0	0	1	2	1	2	1	4	4	2	2	2	1	2	1	1	2	1	1	1	2	2	2	10	89	15	49	50	1	p3	3	1	p2	3	2	4	4	10000	2500
157	devadharshni	18.7.2015	11	2	1	2	1	1	2	1	4	28	5	2	1	1	2	4	0	0	1	1	2	2	1	4	4	2	2	3	1	2	1	1	2	1	1	1	2	2	2	7.7	71	14	44	43	1	1	1	1	1	3	3	5	3	8000	2000
158	kanishkumar	7.9.2015	10	1	1	2	1	1	2	1	5	29	4	2	1	1	1	0	0	5	1	1	2	2	1	4	4	2	2	2	2	2	1	1	2	1	1	1	2	2	2	8.7	70	14	44	41.5	1	1	p1	1	2	2	1	5	5	16000	3200
159	avanthika	30.7.2014	24	2	1	2	1	1	2	1	4	30	3	2	1	2	2	1	0	0	1	1	2	1	1	4	4	2	2	1	2	2	1	1	1	1	1	1	2	2	1	9	77	13.5	45	44.5	1	2	1	2	2	4	3	3	2	6000	1500
160	parnika	13.9.2015	9	2	1	2	1	1	2	1	3	27	5	2	1	1	1	0	0	0	1	1	2	2	1	4	4	2	3	2	2	2	1	1	2	1	1	1	2	2	2	6.5	69	12	43	39	1	1	3	3	1	2	2	5	5	15000	5000
161	babu	18.11,2015	7	1	1	1	1	1	2	1	4	28	3	1	1	2	2	1	0	0	2	1	1	2	1	4	2	2	2	1	4	1	2	1	2	1	1	1	1	2	2	4	54	11	38.5	36.5	3	3	1	3	4	4	5	1	2	6000	1500
162	geerish	30.10.2015	8	1	1	2	1	2	2	1	5	24	6	2	1	2	2	4	0	0	1	1	2	1	1	4	2	2	2	2	1	2	1	1	2	1	1	1	2	2	2	9	58	12.5	48	45	p1	3	p4	2	p3	4	4	1	2	6000	1500

163	yogashree	28.10.2014	20	2	1	2	1	1	2	1	4	26	4	2	1	1	2	2	0	0	1	1	2	1	1	4	4	2	3	3	2	1	2	1	2	2	1	1	1	1	1	9.6	78	15	43.5	45	1	1	1	1	3	3	2	4	2	8000	2000
164	rathika	31.7.2014	24	2	1	2	1	2	2	1	3	22	3	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	2	1	1	2	1	1	1	1	1	1	2	2	1	10	68	16	45	46	1	3	p3	1	2	2	3	4	2	10000	3333
165	jonathan	10.9.2015	10	1	1	2	1	1	2	1	4	26	4	2	1	1	2	1	0	0	1	1	2	1	1	4	4	2	3	3	2	2	1	1	2	1	1	1	2	2	2	6.9	68	13	43	41	2	1	2	2	2	3	2	4	2	80000	2000
166	kavithayani	11.5.2015	14	2	1	2	1	1	2	1	3	28	5	2	1	1	1	0	0	0	1	1	1	2	1	4	4	2	3	2	1	2	1	1	2	1	1	1	2	2	2	9.5	68	15	45	43	p1	3	p3	1	1	2	2	5	4	12000	4000
167	bhavanishree	7.5.2015	13	2	1	2	1	2	2	1	3	30	4	2	1	1	1	0	0	0	1	2	1	2	1	3	3	1	3	2	2	2	1	1	2	2	1	1	2	2	2	7.3	70	13	44	44	2	1	2	2	1	3	4	4	2	8000	2999
168	alvinageorthi	22.8.2015	11	2	1	2	1	2	2	1	4	23	4	2	1	1	2	2	0	0	1	1	2	1	1	4	4	2	2	2	2	2	1	1	2	2	1	1	1	1	2	6.7	65	13.5	42	42	2	3	1	2	2	3	2	4	5	10000	2500
169	blessy	9.10.2015	9	2	1	1	1	1	1	1	4	22	5	2	1	1	2	2	0	0	1	1	2	1	1	4	4	2	2	2	1	2	1	1	2	1	1	1	2	2	2	6.8	68	13	42.5	45	1	1	2	2	1	2	1	6	6	20000	5000
170	srivarshin	26.10.20	9	2	1	2	1	1	2	2	8	24	5	2	1	1	1	0	0	0	1	1	2	1	1	3	3	2	2	3	2	2	1	1	2	1	1	1	1	1	2	7.8	68	14	43.5	43	1	1	p1	1	1	2	1	5	5	40000	5000

	i	15																																																							
171	yuvan	3.6.2015	13	1	1	2	1	1	2	1	3	24	5	2	1	1	1	0	0	0	1	1	2	1	1	3	3	2	2	2	1	2	1	1	2	1	1	2	2	2	2	9	72	14	43.5	46	1	2	p1	1	3	3	2	3	2	8000	2666
172	kithion	12.9.2015	10	1	1	2	1	2	2	1	4	30	4	2	1	2	2	3	0	0	1	2	1	2	1	3	3	2	3	2	1	1	1	1	2	2	1	1	2	2	2	8.1	68	13	43	44	1	2	p1	2	2	3	3	2	4	10000	2500
173	shikandar	6.5.2015	14	1	1	2	1	2	2	1	4	29	5	2	1	1	2	4	0	0	1	2	1	2	1	3	3	2	2	2	2	1	2	1	2	1	1	1	1	1	2	8.2	67	14	45	44	1	3	p2	1	2	1	1	5	5	30000	7500
174	natshatra	11.3.2015	16	2	1	2	1	1	2	1	3	23	5	2	1	1	1	0	0	7	1	2	1	2	1	1	1	1	2	1	2	1	2	1	1	2	1	2	0	1	2	7.2	66	13	44	42	2	3	1	2	2	3	2	4	4	8000	2666
175	aruna	18.12.2014	18	2	2	2	1	1	2	1	5	28	3	2	1	1	3	3	1	0	1	1	1	2	1	4	4	2	2	1	2	1	2	1	1	1	1	1	2	2	2	9.6	78	13.5	45	42	1	1	p1	2	1	3	3	3	2	10000	2000
176	rafik	28.8.2014	22	1	1	2	1	1	2	1	4	27	4	1	1	2	2	4	0	0	1	1	1	1	1	3	3	1	2	3	3	1	2	1	1	2	1	1	1	2	2	8	82.5	13	45	43	3	1	4	2	3	3	4	3	2	8000	2000
177	rhithin	6.12.2016	7	1	1	2	1	2	2	1	5	23	5	2	1	2	1	0	0	0	1	1	2	1	1	3	3	2	2	2	2	1	1	1	2	2	1	2	0	2	2	6.7	65	13.5	45	39	1	1	1	2	p1	3	2	5	2	15000	3000
178	jayashree	18.2.2015	17	2	1	2	1	1	2	2	7	25	4	2	1	2	2	2	0	0	1	2	1	2	2	0	4	2	2	2	2	2	1	1	1	2	1	1	2	2	2	8	79	13	45	41	1	1	3	2	1	4	2	4	2	10000	1421
179	dha	25.	9	2	1	2	1	2	2	1	4	29	3	2	1	1	1	0	0	0	1	1	2	1	1	4	4	2	3	2	2	2	2	1	2	2	1	1	2	2	2	6.9	66	12.	42	42	1	1	1	2	2	3	3	2	2	8,0	200

	bmeria	10.2015																																										5												00	0
180	bomminathan	26.3.2015	15	1	1	2	1	3	2	1	4	26	1	1	1	2	2	1	0	0	1	1	2	1	1	4	3	2	2	1	2	2	2	1	2	1	2	1	2	2	2	7.5	72	13	44.5	42	2	2	2	2	2	4	5	3	2	7000	1750