

# PROCEEDINGS BOOK

## **2<sup>nd</sup> INTERNATIONAL AFRICAN CONFERENCE ON CURRENT STUDIES**

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## 2nd INTERNATIONAL AFRICAN CONFERENCE ON CURRENT STUDIES

### - CONTENTS -

NURADDEEN UMAR SAMBO IBRAHIM SAMBO FAROUQ AMINU HASSAN JAKADA ALI UMAR AHMAD SA'ADATU SULEIMAN SANUSI	
<b>ATTRIBUTES OF PUBLIC INFRASTRUCTURE PREFERENCE IN BAUCHI METROPOLIS, NIGERIA</b>	
IBRAHIM IDRIS BALA ISHIYAKU SANI INUSA MILALA MUHAMMAD USMAN ADEKUNLE	64
دور إدارة الموارد البشرية في وظيفة التوظيف: دراسة استطلاعية تحليلية بمصرف الجمهورية فرع القواسم د. نوري خليفة عثمان خليفة أ. عماد رمضان عمر عمار	74
<b>THE IMPACT OF MILITARY CONFLICT AND COVID – 19 ON THE LIBYAN TRAVEL AND TOURISM COMPANIES: APPLIED STUDY ON TRAVEL AND TOURISM COMPANIES LOCATED IN TRIPOLI - LIBYA</b>	85
ATIYA THABET ABUHARRIS	
<b>BASIC APPROACH TO SOCIAL SCIENCES</b>	95
HAKKI ÇİFTÇİ	
<b>THE HISTORY OF ECONOMICISTS AND HISTORISTS IN TERMS OF AGRICULTURAL REVOLUTION OVERVIEW</b>	102
HAKKI ÇİFTÇİ	
<b>KADINLARIN, MEME KANSERİ ERKEN TANI, BİLGİ VE DAVRANIŞLARI İLE MEME KANSERİ KORKUSU ARASINDAKİ İLİŞKİ</b>	110
EBRU SADIÇ BIRSEN ALTAY	
<b>THE EFFECT OF INTRINSIC AND EXTRINSIC FACTORS ON COMMERCIAL PROPERTY RENTAL VALUE IN DAMATURU OF YOBE STATE, NIGERIA</b>	112
SANI INUSA MILALA MOHAMMED USMAN DR. BALA ISHIYAKU	
<b>ASSESSMENT OF FACTORS AFFECTING BUILDING FACILITY MANAGEMENT EFFECTIVENESS IN FEDERAL MEDICAL CENTRE (FMC) GOMBE, GOMBE STATE, NIGERIA</b>	127
SANI INUSA MILALA	
<b>FACTORS INFLUENCING NON USERS' PERCEPTION FOR GREEN FOOD PRODUCTS</b>	145
SUDIPTA MAJUMDAR AMRITA MAJUMDAR	
<b>FİNANSAL AÇIDAN HOLLANDA HASTALIĞI VE DOĞAL KAYNAK LANETİNİN PARADOKSAL ETKİLERİ: BİR LİTERATÜR İNCELEMESİ</b>	157



## 2. INTERNATIONAL AFRICAN CONFERENCE ON CURRENT STUDIES

### Factors Influencing Non Users' Perception for Green Food Products

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#### **Abstract**

Considering the danger of environmental and health hazards, the importance of environmental consciousness in the form of promoting consumption of green products, which are environment friendly, is felt by every cognizant human being. While the concern for the health of environment and non-users has been reflected in endorsing green products, our earlier research has put forth a set of identified factors which influence preferences for green products. On this backdrop, this study has been undertaken, considering the green Food products only, to prioritize the factors on the basis of the magnitude of their influences on non-users' preferences. Identification of factors influencing preferences for green Food products which has been done in our earlier research through factor analysis has been referred in this study and placed on the backdrop. In order to prioritize the identified factors, the technique of multiple regression has been used. The respondents considered for this study are persons aware about green Food products based in and around Kolkata, India. The paper also tries to find out the impact of different psychographic variables with respect to popularity of green food products. The findings so obtained will definitely help to strategize for stretching the incidence and depth of usage of green food products focusing on most influencing factors and hence contribute to safeguard the health of people and environment at large.

**Keywords:** Green Food Products, Factors, Kolkata, Multiple Regression, Psychographic Variables

#### **1. Introduction**

From the last decade onwards people became more concerned about their health, as a result of which, they are using more of green products. Green products can be stated as having less of an impact on the environment and are less damaging to human health than traditional products. Hence they are also called as sustainable or environment friendly product. Green products are formed from recycled components, be manufactured in a more energy-conservative way, or be supplied to the market in more environmental friendly way. Since people are becoming more aware about the concept of environmental consciousness, the usage of traditional or conventional products are getting reduced. Traditional products are those manufactured in the traditional way. They are not being produced keeping environmental considerations in mind. In today's competitive scenario green products are competing with the conventional or regular products (products produced by traditional methods). But, this usage pattern is not applicable to all parts of the society. Knowledge and awareness about the green products play a very vital role in enabling the customers to use them. But, this awareness and knowledge do not exist, thus restricting the usage of the green products. From the last decade onwards, we have started using the green products and it will take time before it penetrates to all parts of the society.

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**RELATIONSHIP BETWEEN THE PSYCHOLOGICAL CONTRACT AND JOB SATISFACTION OF FACULTY MEMBERS IN PRIVATE UNIVERSITIES**

**Amrita Majumdar**  
Jharkhand Rai University, India

DOI: <https://doi.org/10.32770/jbfem.vol369-84>

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Bijendra Rajbanshi  
<https://doi.org/10.32770/jbfem.vol355-68> 55-68

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## **Millets- A tool for resilient Agriculture system in Jharkhand**

**Dr. Pallavi Praveen<sup>1</sup>, Pronomita Ghosh<sup>2</sup>, Dr. Hemlata Kumari<sup>3</sup>**

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### **Abstract**

This paper deals with the unique traits of resilient agricultural practices that can bring a great momentum in the development of the state agronomically. In today's world we all are concerned about food security, land restoration, creating healthy food, environmental impacts on nature, extracting energy from nature, dealing with changes in climate and so on. Millets are an answer to all this in combination with maintaining sustainable food systems, their production, maintenance of natural resources, dealing with uncertainties and lastly providing a livelihood for the rural people. In this pandemic situation when everything is not in our control sustainable development and food security are the key points that needs to be the core of climate smart agriculture.

**Key words:** Sustainable, cultivation, resilience, biochemical, smart crop, resources.

### **1. Introduction:**

India is growing at a fast pace, so as our state of Jharkhand. This gained momentum can also be attributed to our very own cultivation of smart crops called millets by the indigenous people of the state. Although the prospect of millets cultivation in Jharkhand is tremendous, yet the farmers need support and revenue. These nutri-cereals hold a tremendous potential in bringing new age climate resilient agriculture in the state. As it is predicted that, by the year 2050, the population

meter can rise up to 9 billion, it is very essential to understand that, agriculture and related activities contribute to the most of the environmental decay. It is significantly very important to understand that, agriculture causes environmental decay. The gradual increase in population around the world, especially in our country, needs large scale agricultural produce to meet malnutrition as well as micro-nutrients deficiencies related issues (special mention of Pandemic situation not be ignored). Cultivation of these coarse grains can make production of food much more wholesome, healthier and climate resilient in the country. Studies have revealed that, growing these minor crops selectively can contribute in the reduction of many negative effects of environmental shocks on future crops production in our country.

## **2. Millets: Encouraging grains for the new age:**

Millets are known for their wide adaptive range across the country, but specifically it serves a tool for resilient agriculture. Other supportive features of the nutri-cereals are climate resilient features, very less of its irrigational requirements, less reliance on artificial fertilizers, and better productivity under a wide range of climatic conditions. It is also less vulnerable to sudden environmental stresses (Kole et al, 2015). Being superior to other crops like Rice, Maize, Wheat, they also hold key positions in contributing to the most of the required dietary fibre, essential amino acids, and essential bio active compounds (Amadou et al, 2013). Also they are rich in iron , magnesium, potassium , phosphorus.

They can grow in a wide range of climates such as arid, semi-arid, drought affected soil etc as one of the major cereals. In Jharkhand, very less effort has been made to acknowledge the role of finger millets (Ragi) as well as foxtail millets (kangni) in attributing to climate resilient agriculture in the state. They can be identified as models for studying stress biology of the soil

(Muthamilarasam and Prasad 2015), rate of photosynthesis and capability of becoming bio-fuel (Bennetzen et al 2012, Zhang et al 2012). The ever growing population is not only throwing challenges as the availability of healthy (balanced) diet but also it is high time that we must check on threats witnessed by the agricultural crops because of drastically changing climatic conditions environmental pollutions. This is high time that we must incorporate millets in agri - biodiversification as a promising tool in overcoming the environmental stresses. We need a very strong and yet resilient agricultural sector supporting the livelihoods of tribal and rural populations and this can be enhanced by allowing these smart foods in our daily meals. We can be confident in dealing with nutrient scarcity and providing ways for small holder farmers to earn a handsome living wage. Several groups of millets that are smart cereals hold a key role in mitigating climatic changes. They can be grown in the climatic conditions of Jharkhand (arid, semi-arid, drought affected, mining affected). One of basic resilience shown by these small millets like finger millet, proso millet, foxtail millet, barnyard millets is that, they can be they can be successfully harvested in low or very low rainfall (Smita N. Shingane) whereas other commercialised crops fail to grow in such disturbed climates. Millets such as Sorghum, Ragi, Jowar, are tolerant to arid, semi-arid, drought conditions, biotic as well as abiotic stresses. These future crops are new ray of hopes to combat nutrient deficiencies, insufficiency of proteins, minerals and vitamins in expecting mothers and also among growing children. These crops are also very much important in mitigating the agricultural pollution due to less usage of chemical fertilizers and also maintain the Nitrogen Cycle. We all are aware of symbiotic bacteria, whose contribution is irreplaceable but studies show that, growing millets in Nitrogen deficit soil, drought affected soil, barren soil can turn out to be a boon to the farmers. Most of the crops in this group are pest resistant and helps us to envision them as staple dishes in the days to come. Compared to Jharkhand, in other states as Gujarat, Rajasthan, Tamilnadu, Maharashtra, Nagaland,



Mizoram, the role of millets in reviving nature's ecological traits, reducing soil pollution and lowering environmental decay is much appreciated. They bestow tolerance to even barren land and least rainfall. In fact in most of southern India millets have taken up the responsibility to turn barren unproductive land into a vegetative one. We should encourage farmers to grow more and more of these are highly potential.

### **3. Attributes of Millets in resilient agriculture:**

Cultivation of these coarse grains can make production of food much more available to sectors of society and even the low income can have wholesome food throughout the year.

They bestow much higher tolerance to environmental stresses and shocks. There are several morphological, physiological, as well as bio-chemical properties of our "Super grains" are better stake as compared to other major cereals. Firstly, their short span of life cycle helps to get away with all kinds of stresses. As compared to Rice, Maize and Wheat which takes around 3-6 months, they only take 2-3 months to reach maturation and are ready for harvest. Millets are generally C<sub>4</sub> photosynthetic plants and they, due to this trait, there is an enhancement in the concentration of Carbon-di-oxide and suppression of photorespiration (Sage et al, 2011). They have dense root system, small leaf area to confer sustainability of these crops amidst major cereals and climatic stresses. A recent study suggests that millets have an enhanced photosynthetic rate, nitrogen and water use efficiency. They produce approximately 1 gram of dry biomass by utilising 250 gram of water whereas on the other hand Maize consumes 470-510 grams of water. They are surely the next generation crops with the quality of becoming a household phenomenon for the country's food and nutrition security.

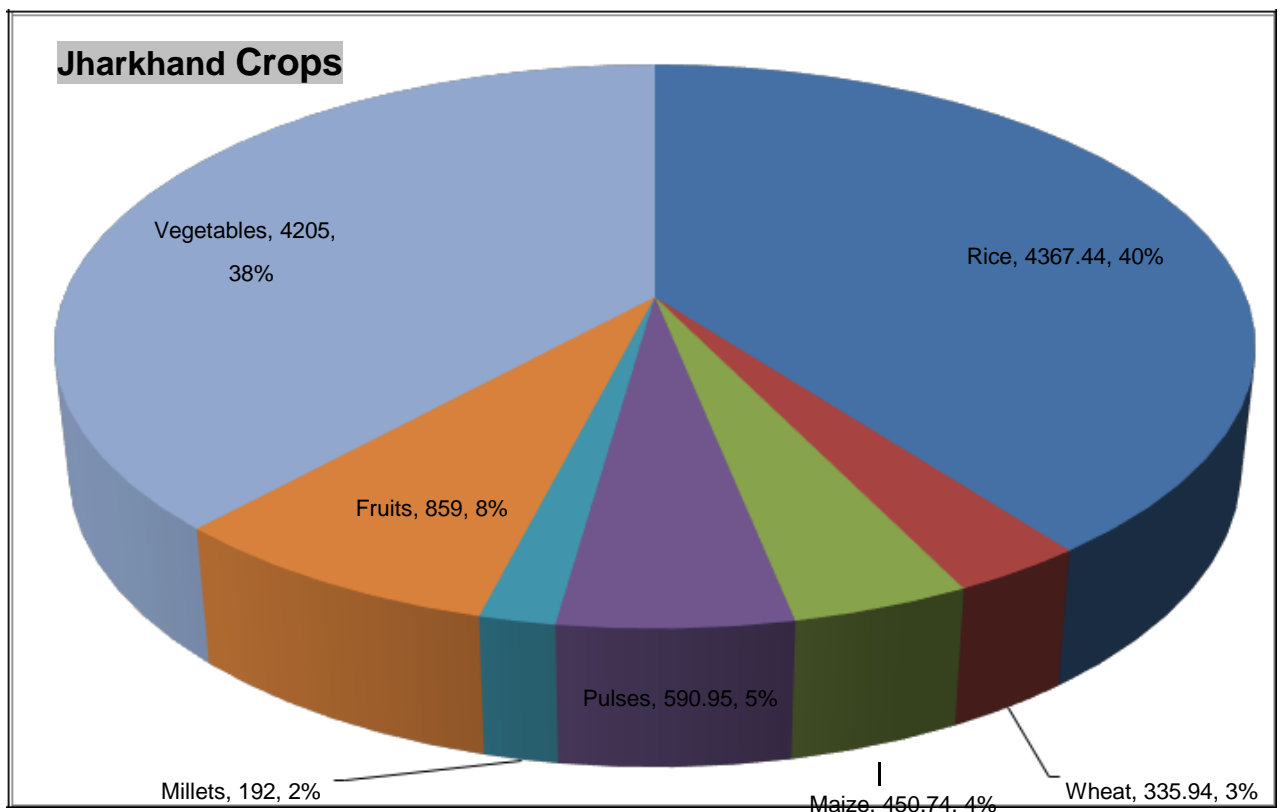
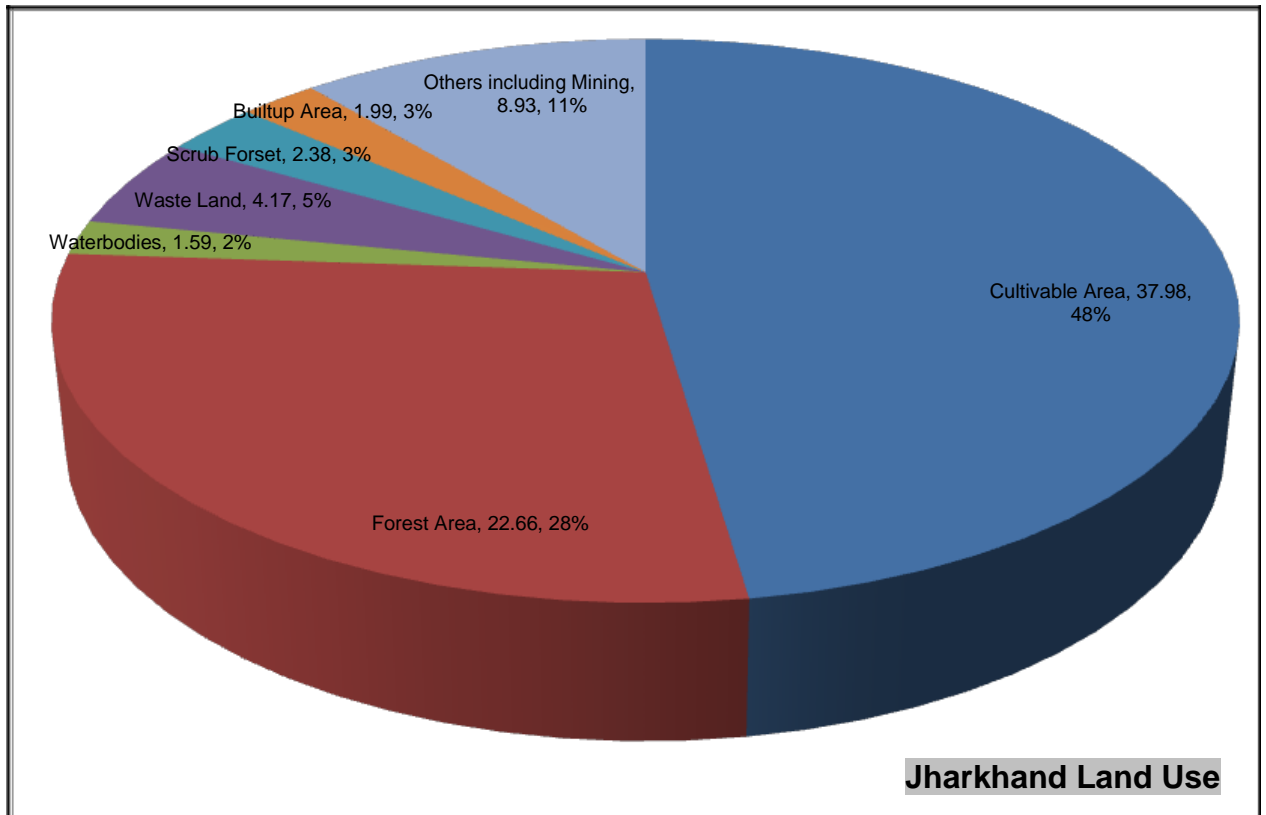
#### **4. Millets: Models to combat environmental stress:**

The high tolerance level of millets towards salinity, light, drought as well as heat makes it champion to be the model to combat any kind of climatic shocks due to environmental changes. Several morphological, physiological as well as bio-chemical studies (recent) reveal the various types of adaptations observed in millets. Millets like Ragi, Jowar, Bajri, and Kutki can be easily grown in all seasons. They do not have any climate preferences. With each passing year there is an immense increase in millet acceptance throughout the country. In the states like Tamil Nadu, Maharashtra, Rajasthan and also Arunachal Pradesh millets have gained importance in daily as well as traditional diets. Around 35 – 40 % of total agricultural land is devoted to growing millets in these states according to government policy and mission to convert dry and sustainable land into cropland (by growing millets) with huge revenues. Awareness among farmers especially tribal farmers should be encouraged as they face initial failure in cropping months due to either untimely rainfall or failure in rain. There should be distribution of good quality seeds, dehulling machines, millet based food items in each district of Jharkhand. These millets can grow along with pulses to meet all requirements. Growing in climate resilient terrains have made millets pick of the hour at a fast rate. We need to propagate this culture widely in the coming days for the coming generation. Due to tremendous amount of mining activities in the state agriculture is very badly affected (soil becomes stony with less water retention capacity) so as its nearby flora and fauna. The present scenario of soil profile advocates for millet production as they are very less affected by biotic and abiotic shocks.

**Table:** Nutrient Composition of Millets (per 100gm)

<b>Food Grains</b>	<b>Protein (g)</b>	<b>Fat (g)</b>	<b>Ash (g)</b>	<b>Crude fibre (g)</b>	<b>Carbohydrates (g)</b>	<b>Energy (kCal)</b>	<b>Ca (mg)</b>	<b>Fe (mg)</b>
Foxtail Millet	12.3	4.3	3.3	8.0	60.9	331	31	2.8
Proso Millet	12.5	1.1	3.1	2.2	70.4	341	14	0.8
Finger Millet	7.3	1.3	2.6	3.6	72.0	328	344	3.9
Barnyard Millet	7.08	2.2	4.5	9.8	70.0	307	20	5.0

Figures:



## 5. Conclusion:

Due to lack of knowledge, revival strategies and poor encouragement the different native tribes of Jharkhand have stopped cultivating these wonder crops. They need our support and co-operation to overcome losses due to several natural disasters, displacement or migration of people for labour work, deforestation, poor agricultural yields, human – animal conflict resulting in their (depressed communities) vulnerable situation. Small landholdings , discouragement of shifting cultivation (for restrictions under wildlife protection act) is making it difficult for cultivators but they need our support , revenue and encouragement .These crops can also be stored for many years without any special care and control unlike common staples . It comes with so much potential that we need to save it from extinction. Millets needs to be selected in PDS, direct market sales, community seed banks, and ultimately global commercial markets can advertise and promote millet cultivation.

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## SWAVLAMBAN – AN INITIATIVE TO THRIVE TOWARDS DIGNITY

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### **Abstract**

The tribal people domicile India, our motherland for about 10% of the total inhabitants. Their essence lies in their simple yet tough lifestyle in the picturesque nature's lap in most of the states. They are mostly unaware of most of the hues and cries of modern life and also the competitive world. They are also flag-bearers of many indigenous customs and rituals. This customs sometimes makes them community bound and restricts education, medical facilities and sanitization, promotes child marriage, very less scope for skill development. Apart from managing all household chores the women (tribal) population is involved in many types of voluntary activities for the betterment of society within their limited capabilities. This paper deals with the upliftment of tribal women especially in the food industry, goods industry and small-scale entrepreneurship with limited resources.

**Key words:** Development, Domicile , Cultivation, Biochemical , Resources.

**Introduction** - Swami Vivekananda preached in his gospel of social rising to fellow Indian that “ There is no chance for welfare of the world unless basic condition of our women is improved .It is not possible for a bird to fly with a damaged wing.” He always paid high regards to women and his belief never got tilted regarding the strength of our women.

Women empowerment generally signifies the capacity to participate as equal partners in cultural, social, and political system in a society. With all inherent strength and inborn natural capabilities, over centuries, our Indian society has grossly neglected, humiliated and was not ready to accept the potential in our women and treated them as second-class citizen.



Three major areas for the improvement of our women folk and their programmed development were identified as lack of education, poor health and social welfare. This is again extended to the areas of women and child malnutrition, infant mortality, early marriage etc. A comprehensive national policy was adopted on women empowerment during 20<sup>th</sup> march 2001 under international pressure. Few salient features are

- a) 33% seat reservation for women in parliament, assembly and all local self Government.
- b) Free education to all girl child up to 12<sup>th</sup> standard
- c) Access to power in administration and contesting the all types of election
- d) Alleviation of domestic and social violence against women.

In this regard United Nation is also playing a significant role by guiding the countries worldwide:

- a) Elimination of discrimination against women and girls
- b) Empowerment of women
- c) Achievement of equality between women and men as partners and beneficiaries of development, human rights, humanitarian action, peace and security for women.

UN has dedicated one of its Millennium Development Goals to empowerment of Indian women considering the relatively poor state of affairs of our women. In the state of Jharkhand tribal population comprises of forest dwellers, hunter – gatherers, small-scale entrepreneurs. Jharkhand has been home to tribal communities since time immemorial. Prof. L.P Vidyarthi classified the tribes of Jharkhand as:

- Hunter – Gather type – Birhor, Korwar.
- Shifting Agriculture – Suria Paharia
- Simple artisans - Mahli, Lohar, Karmali, Chick Bariak.

Settled Agricultures – Santhal, Munda, Oraon, Ho, and Bhumij.

Tribal and rural women living mostly in biodiversity rich areas possess a wealth of knowledge about the use and conservation of plant genetic diversity. This knowledge, collected and developed over years of observation by trial and error, inference and inheritance has remained with them. In Jharkhand, tribal women paly an important role and take part in all activities right

form farming, collecting food, fodder and fuel from the forest to marketing their produce in local hats. There is no restriction to their movement unlike other communities. Because of their multiple roles and responsibilities as providers of food, fodder, fuel, health care and other household needs, women have knowledge of various uses of plants. They have clear understandings of seasonal variations and availability of these edible and medicinal plants. They produce food items from the wild according to the season or whenever they are required. In the state several NGOs are striving towards the betterment of these indigenous people. One of my recent visits to a small NGO named SURBHI helped me to get an insight of their struggles to be a part of economic upfront and mainstream business. It is located in the steel town of the state, Bokaro. Although the mahila samiti wing of the Steel Authority of India, Bokaro supports it, the hard work, determination and sheer enthusiasm of these women have made it successful. Situated near Bokaro General Hospital, the ngo 'SURBHI' works in the arena of manufacturing, retail and also confectionery. With the overwhelming success of the existing "Surbhi" the group started contemplating extending of their services with a view to improving the quality of life of the local tribal people women in particular. The outcome was establishment of a new set up "Swavlamban", which is an extended activity center providing jobs for tribal women who are indeed needy and specially challenged. The organization has extended its arms to 'Swavlamban', another wing of the main body that deals with areas like medical aid, sericulture, manufacturing of gloves, education of tribal children, art and craft etc. Empowering tribal specially abled women who are not only ignored by the family members but also to a large extent neglected by the society. Surbhi and Swavlamban do not only provides opportunity to overcome their shortcomings but also enhances their special talent, skill and self-esteem. They are no more regarded as a burden to the family but seen as an epitome of courage to overcome all odds. It is one of the most prominent and leading NGO in District of Bokaro in Jharkhand. The housewives, widows and young tribal girls who are differently abled run it. The organization has earned name and fame for their undaunted attitude and multi-prong activities among the poor and the destitute in and around the area of Bokaro. There are approximately 75 – 80 members (except the guard and caretaker), all are tribal women. Some of the most appreciable works include :

### **SURBHI**

- a) Pickle making.
- b) Cookies, snack items, papad making, gujiyas etc.

- c) Flour making (they have sponsored machines)
- d) Washing , dehusking of spices , making powder , packaging also done in the most hygienic way.
- e) Making diyas (earthen lamps) ,colorfully decorating.

### **SWAVLAMBAN**

- a) Soap making (only for district hospital)
- b) Sanitary napkins specially for tribal and needy poor section.
- c) Gloves and masks , doctors gown for steel authority staffs only. d) Thalessemia patients are taken care of completely here sponsored by Sail. e) Promoting the skill of developing raw silk and silk thread by the cocoon is also done here.
- f) Promoting handloom ,curtains, bamboo grass baskets are also manufactured by these tribal women.
- g) Candle making using organic natural colors and showcasing them in JHARCRAFT.

Tribal women are extremely hardworking from an early tender age, they are slowly gaining appreciation for their devotion and perseverance to carry forward their skills nationally and internationally. Slowly they are trying to achieve basic education & knowledge about hygiene during menstrual cycle. Some of the highly recommended snack items specially during festivals are homemade chips, pancakes, khakras, crunchy cranberry and almond toasted millet muesli (outsourced). The organization is also engaged in grinding and marketing of spice and condiment thus maintaining high quality and purity barring stiff challenges from local traders. It has a separate bakery department that makes high quality cakes and pastry on regular basis and supplies against tailor-made orders. All these are non- profit activities thus remain on heavy demand. Slowly but there is an steady increase in the demand of different varieties of millets specially bajra, sama and jowar among several communities (to mention Gujratis & Rajasthanis) whereas people of south

Indian origin & natives of this state prefer ragi, kutki in their daily meals as well as specially prepared menus have delicacies like sama kheer, madua laddoos etc.. Recent market surveys show several flavors of different seasonal fruits and veggies brought together with this seeded grains as well. Some nutritious grains are also involved in their list that are customizable like kodo millet flour, kodo millet dos amix, jowar cake mix, bajra rotta, oats porridge, oats veggie twist, ragi porridge, choco filled ragi bites, bajra nankhatais, madua laddoo, madua chilla etc . other than usual flours and mixes(the kuas and nimkis are very famous although). According to my study around some nearby districts including Bokaro, it is seen that many tribal communities who are indigenous have a bunch of traditional foods where millets play a very significant role. Millets especially Ragi (Finger Millets) features in Ragi thandai (spring season), Ragi Kulfi (ragi powder mixed with roasted nuts, Gond and Madua laddoo (Winter) are to name a few. These are actually optional to incorporate Ragi into all these delicacies to enhance the nutritive value My study also aimed at Santhal tribal community, Paharia tribal community and Ho tribal communities, by assessing to enhance the their food or delicacies' nutrients value and along with that also appraising its high potential in combating hidden and compelling hunger. Surbhi and Swavlamban has a policy of inducing specially abled tribal women only . Established in the 80's the small one room organization now has 70 – 80 members and they are extremely skilled and talented. Extreme hygienic conditions are maintained for the proper packaging of food items. Talks are going on to allot residential rooms and pension schemes for the staff





Fig – Bhujias being made by staff of Surbhi although  
Packaging done by staff of Bokaro General Hospital.



a

Fig – Visit to the area where some of the differently abled staff reside.



Fig-Customised mathris , gupchup , and kheer using millets like sama , ragi flour bajra flour

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- 1.Excerpts based on the conversation between the writer and general secretary Mrs Rita Rani ,Mahila Samiti ,SAIL , B.S.City. 2.Volunteers and caretakers of Surbhi, B.S.City.
- 3.Bokaro Darpan.
- 4.Tribal people(staff) at bokaro general hospital. 5.Corporate social responsibility report from SAIL,B.S.City.



## EVALUATION OF NUTRITIONAL STATUS OF 0 TO 6 YEARS CHILDREN AT KURSEONG BLOCK

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### Abstract

Global Nutrition Report has been evaluated that highest number of stunted (46.6 million) and wasted (46.6 million) children are from India. In West Bengal among under 5 children proportion of stunted, underweight and wasted are 32.2%, 31.6% and 20.3% respectively. In this study nutritional status of children between 1 to 6 years age group was studied at Kurseong Block of Darjeeling district in West Bengal. Anthropometric measurements like weight, MUAC and height were taken and analyzed. Total number of children were 174. The result showed that 25.86%, 20.21% and 38.51% children were found as underweight, wasted and stunted respectively. By analyzing MUAC, 4.27% children were suffering from severe wasting. A large number of parents not completed the primary education.

### 1. Introduction

Nutrition is one of the pillars for physical and mental development of a human and on large scale it also helps for economic uprise for a country. Global Nutrition Report,2018 has been evaluated that highest number of stunted (46.6 million) and wasted (46.6 million) children are from India (Global Nutrition Report, 2018). NFHS-4 (National Family Health survey-4) (2015-16) reported that 38.4% under five years children were stunted, 21.0% were threatened by wasting and 35.8% were suffered by underweight (NHES-4, India, 2015-16). In West Bengal among under 5 children proportion of stunted, underweight and wasted are 32.2%, 31.6% and 20.3% respectively (NHFS-4, West Bengal, 2015-16).

In a human life, rapid development occurs during the first five years. The lack of nutrition or inadequate nutrition significantly hampers development and growth and may cause growth failure and also there may be permanent impairment in the body (Osmani, 2003).

On 2<sup>nd</sup> October 1975, the Government of India introduced Integrated Child Development Services (ICDS) programme over 33 blocks to minimise malnutrition. Today ICDS is one of the largest programme for early childhood development in the World. This is

an inter-sector program among the children aged below 6 years of vulnerable and remotes areas (Dogra, 2013).

Assessment of the status of nutrition of children is very useful to estimate growth pattern. To evaluate nutritional status different anthropometric indices are used. Among all anthropometric indices stunting (height-for-age), wasting (weight-for-height) and underweight (weight-for-age) were internationally most commonly used (WHO, 1995; Lee and Neiman, 2003). Stunting reflects growth failure due to prolonged food deprivation or disease. While underweight indicates low body mass according to age. On the other side, wasting is acute under nutrition resulting from recent food deprivation or illness (WHO, 1995).

Various studies and report show that there are still a lot of malnourished children in India even after successfully running these Anganwadi centers. The number is not even less in West Bengal. But very few studies have done at this state. But no study was conducted on the children of Anganwadi centers at Kurseong block. So, an attempt was taken to assess the nutritional status of children between 0-6 years who were registered at Anganwadi centers at Kurseong block at Darjeeling district in West Bengal.

## **2. Research Methodology**

It is a cross sectional study and one on May 2016 at the Kurseong block of Darjeeling district at West Bengal. Five Anganwadi Centre were selected randomly. For collecting the data, approval from District Programme Officer was collected. Around 174 children were involved in the study. Anthropometric measurements like MUAC (Mid Upper Arm Circumference), weight and height were collected among children ( $n_1=174$ ) belongs to 0-6 years age and registered at Anganwadi center.

To taking weight, digital portable weight machine was used and the reading was recorded nearest 0.1kg (100gm). Reading was taken with minimal cloth and bare foot.

For children below 2 years, Infant meter was used for measuring the height. In case of children above 2 years, the stadiometer was used and the reading was recorded to the nearest centimetre with bare foot.

For measuring MUAC, MUAC tape of UNICEF was used and the reading was recorded to the immediate centimetre among the children ( $n_2=155$ ) 6months to 5 years.

The personal details of children were recorded from the Mother and child protection card supplied by government of West Bengal. For analyzing the data WHO reference median and WHO criteria-based units of standard deviation (z-scores) were used (Olack,2011). The following indexes were used for nutritional status detection (WHO,2006) (WHO,2007)-

- a) Height-for-age: for stunting
- b) Weight-for-age: for Underweight
- c) MUAC-for-age: for Malnutrition
- d) Weight-for-height: for wasting

The moderate and severe degree of the indexes were recorded by  $<-2SD$  and  $<-3SD$  respectively and all the values above  $-2SD$  was considered as normal.

A set of questions were formulated for the parents of the subjected children to know the required knowledge about child feeding practice, cooking methods, monthly weight monitoring of children, hygiene and awareness, taboos of family, family monthly income of family, regular attending the Anganwadi center, educational and educational qualification level of parents and etc. Education qualification, occupation of parents and monthly family income were also recorded. Occupational and academic profile of the parents were listed into three groups-

For Educationa-

- I. 'Below Primary'
- II. 'Primary to HS (Higher Secondary)'
- III. 'Above HS (Higher Secondary)'

For Occupationa-

- I. 'Laborer' and 'Housewife'
- II. 'Business holder'
- III. 'Service worker'

For the monthly income of family, three different categories were selected. The maximum and minimum income was noticed and then Standard Deviation (SD) and Mean of the total income of all family of children were evaluated. Next, in the following way, the income was sectioned (Snedecor and Cockran, 1994)-

- I. 'Lower [(Lowest income to (Mean-SD))]'
- II. 'Moderate [(Mean-SD) to (Mean+SD)]'
- III. 'Higher [(Mean+SD) to Highest income]'

Understanding the knowledge of the parents on the health aspect some questions were selected. These questions were separated into following 5 broad groups-

- a) Knowledge about aspects of breastfeeding
- b) Knowledge about aspects of weaning
- c) Knowledge about aspects of Hygiene
- d) Knowledge about aspects of the cooking process
- e) Knowledge about aspects of pregnancy

### 3. Result

#### Age Distribution

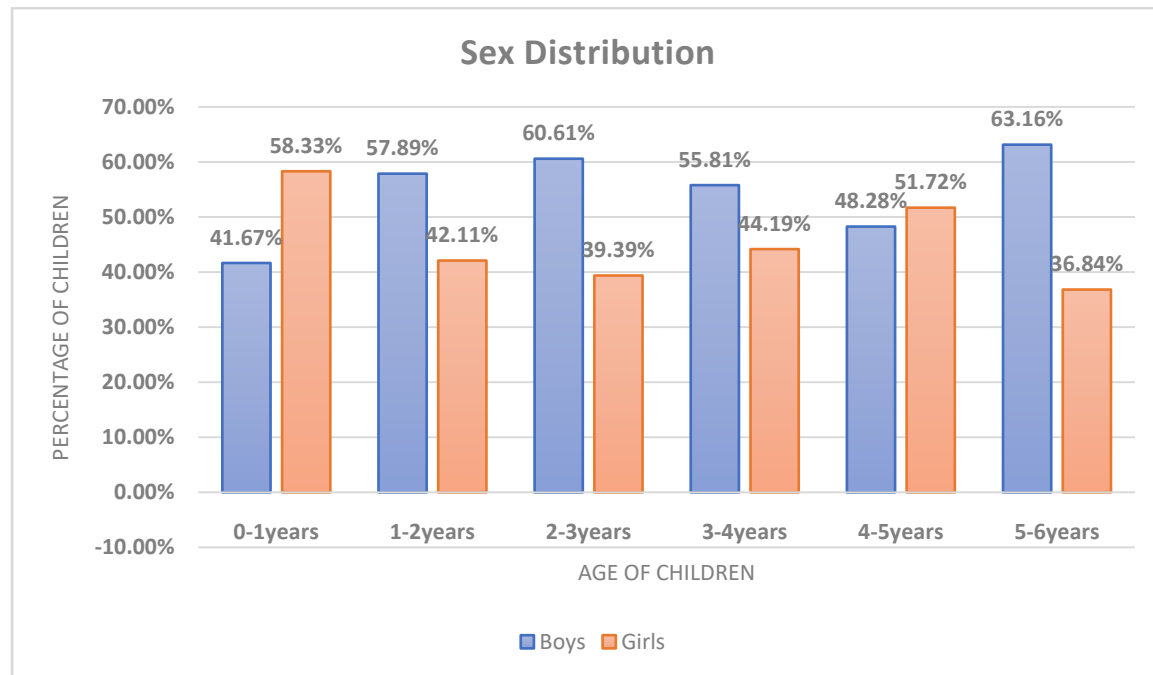
All the children were divided into six age groups, i.e. 0-1 years, 1-2 years, 2-3 years, 3-4 years, 4-5 years, 5-6 years. About 06.90%, 21.83% and 18.96% children belong to 0-1, 1-2 and 2-3 years age group respectively. Around 26.74%, 16.67% and 10.90% children were in 3-4, 4-5 and 5-6 years age group respectively.

**Table: 3.1. Age distribution of children (n<sub>1</sub>=174) at Kurseong block**

Age group	Percentage (%)
0-1	6.90
1-2	21.83
2-3	18.96
3-4	26.74
4-5	16.67
5-6	10.90
Total	100

## Sex Distribution

Among the children 55.75% was boys and 44.25% was girls. In 0-1 years age group, 41.67% boys and 58.33% girls, in 1-2 years age group 57.89% boys and 42.11% girls, in 2-3 years age group 60.61% boys and 39.39% girls, in 3-4 years age group 55.81% boys and 44.19% girls, in 4-5 years 48.28% boys and 51.72% girls, in 5-6 years 63.16% boys and 36.84% girls.



**Figure: 3.1. Sex distribution of children ( $n_1=174$ ) at Kurseong block**

## Malnutrition

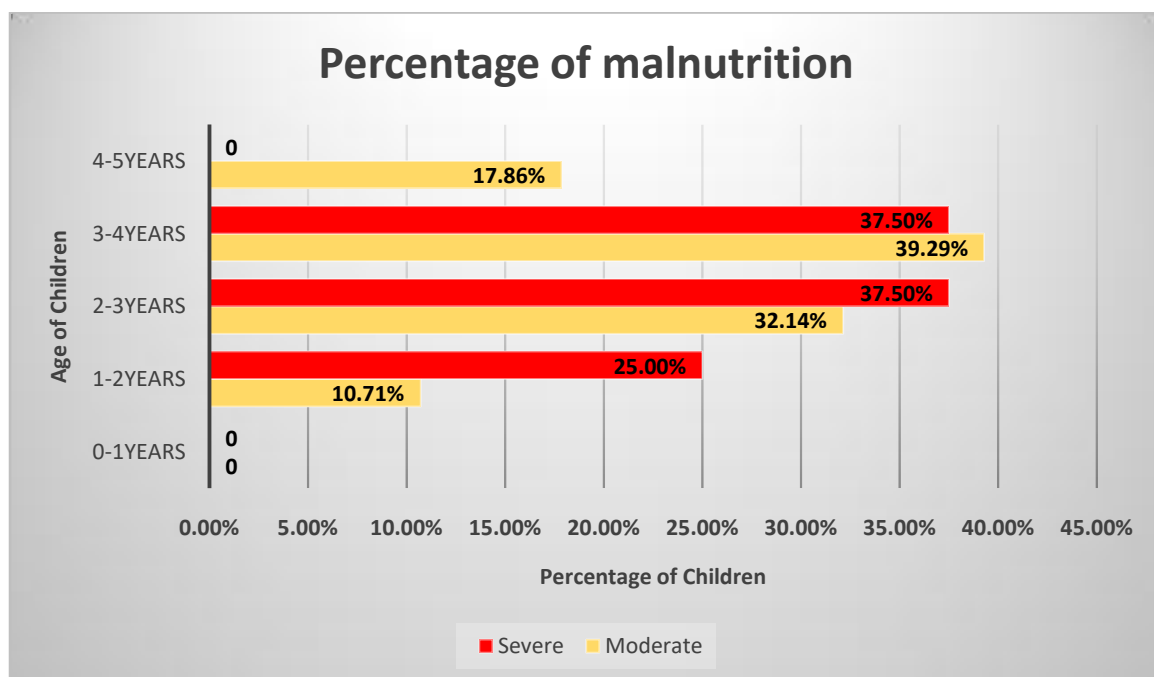
The data showed that 4.27% and 18.06% children of the study were moderate and severe malnourished respectively. This data was analyzed by taking MUAC of the children. Among boys 14.10% children belong to moderate malnutrition and 7.10% were in severe zone. Almost 22.90% girls were in moderate malnutrition and only 2.80% girls were severely affected. Severe malnutrition was more prevalent in 2-3 and 3-4 years age group followed by 1-2 years age group.

**Table: 3.2. Percentage of malnutrition among children (n<sub>1</sub>=155) at Kurseong block by measuring MUAC**

Degree of malnutrition	Percentage (%)
Normal	77.67
Moderate	18.06
Severe	4.27
<b>Total</b>	100

**Table: 3.3. Percentage of malnutrition by MUAC among Anganwadi children (n<sub>1</sub>=155) by MUAC for age Z-score according to sex at Kurseong**

Parameters	Percentage (%)	
	Boys	Girls
<b>MUAC for age Z-score (n<sub>8</sub>=155)</b>		
Normal	78.80	74.30
<-2SD	14.10	22.90
<-3SD	07.10	02.80



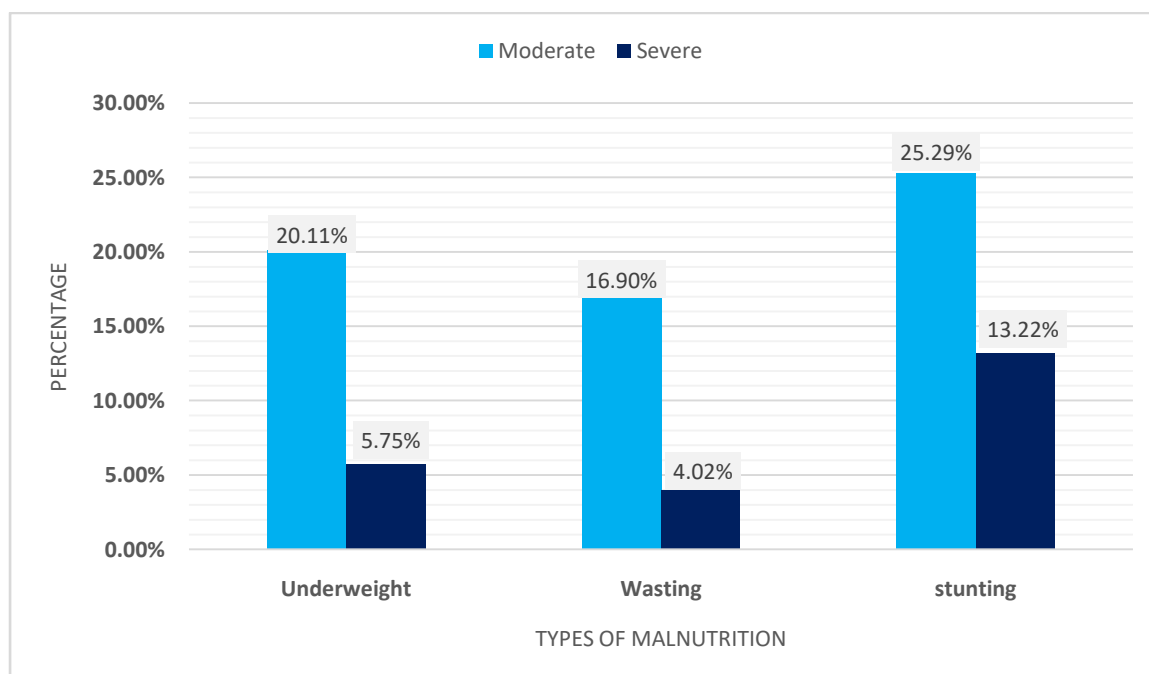
**Figure: 3.2. Percentage of malnutrition by MUAC among children (n<sub>1</sub>=155) at Kurseong block by measuring MUAC according to gender**

## Underweight

About 25.86% children were underweight. Among them, 20.11% was moderately and 5.75% children were severely affected by underweight. Boys and girls were affected equally by moderate level of underweight. Boys (7.20%) was more severely affected than the girls (3.90%). Moderate degree of underweight was more prevalent in 1-2 (28.57%), 2-3 (25.71%) and 3-4 (22.86%) years age group than other age group. Age group of 2-3 (40.00%) years are highly affected by severe underweight followed by 3-4 (30.00%) and 1-2 (20.00%) years age group.

**Table: 3.4. Percentage of different form of malnutrition among children (n<sub>1</sub>=174) at Kurseong block**

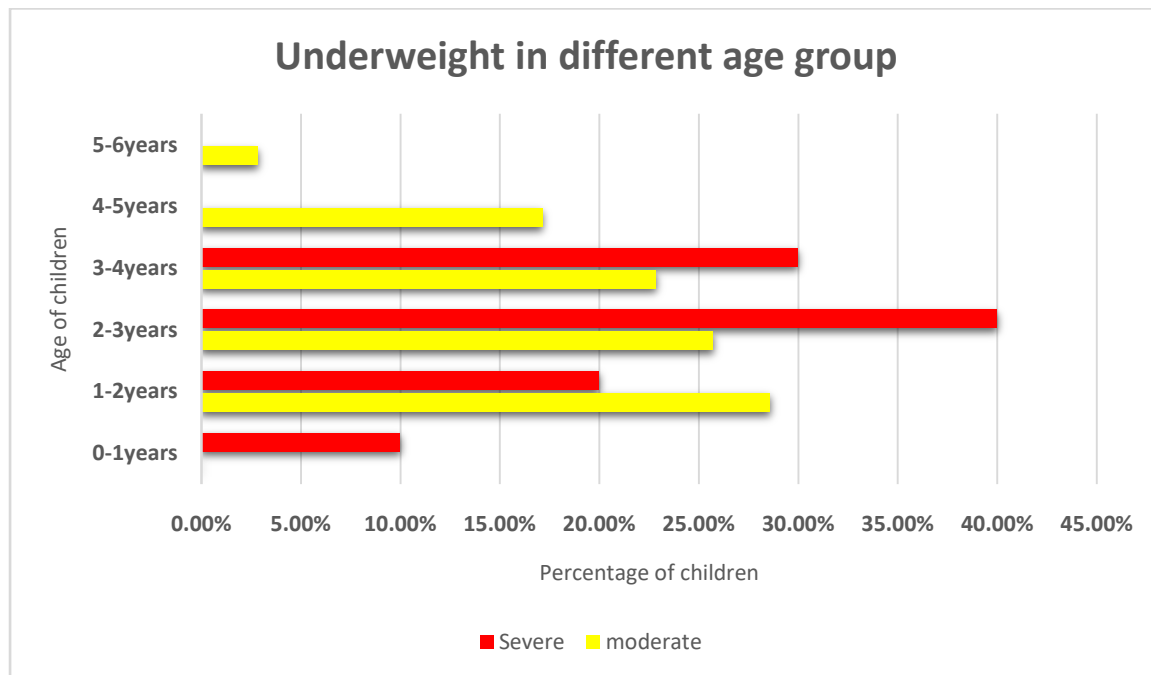
Types of malnutrition	Percentage (%)
Underweight	25.86
Wasting	20.21
Stunting	38.51
<b>Total</b>	<b>100</b>



**Figure: 3.3. Prevalence (%) of moderate and severe form of different types of malnutrition among children (n<sub>1</sub>=174) at Kurseong block**

**Table: 3.5. Prevalence (%) of moderate and severe form of underweight among children (n<sub>1</sub>=174) at Kurseong block in different gender**

Gender	Moderate underweight	Severe underweight
Boys	19.60%	7.20%
Girls	20.80%	3.90%



**Figure: 3.4. Prevalence (%) of underweight in different age group among children (n<sub>1</sub>=174) at Kurseong block**

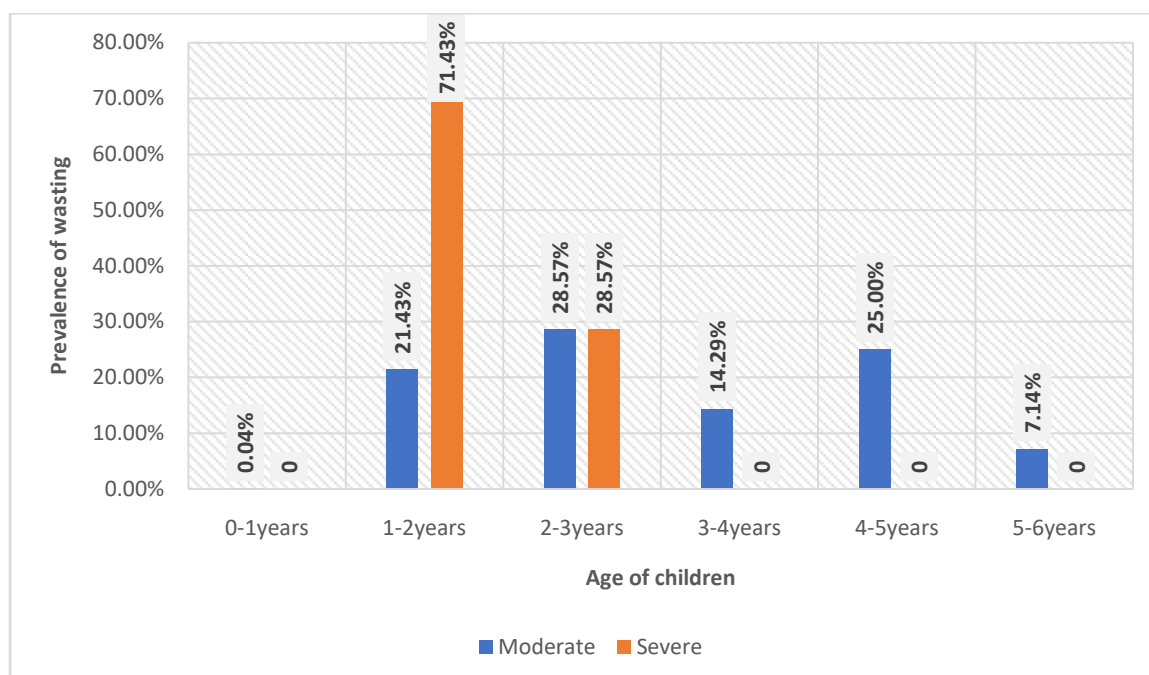
### Wasting

The prevalence of wasting was 20.21%. Among them 16.90% and 4.02% children were moderately and severely wasting respectively. Girls were more affected than boys by moderate wasting. Severe wasting was found in boys. Moderate wasting was high in 2-3 years (28.57%) followed by 4-5 years 25.00% and 1-2 years (21.43%). Almost 71.43% severely wasting children belong to 1-2 years age group and the rest 28.57% children was in 2-3 years age group.



**Table: 3.6. Prevalence (%) of moderate and severe wasting among children (n<sub>1</sub>=174) at Kurseong block in different sex**

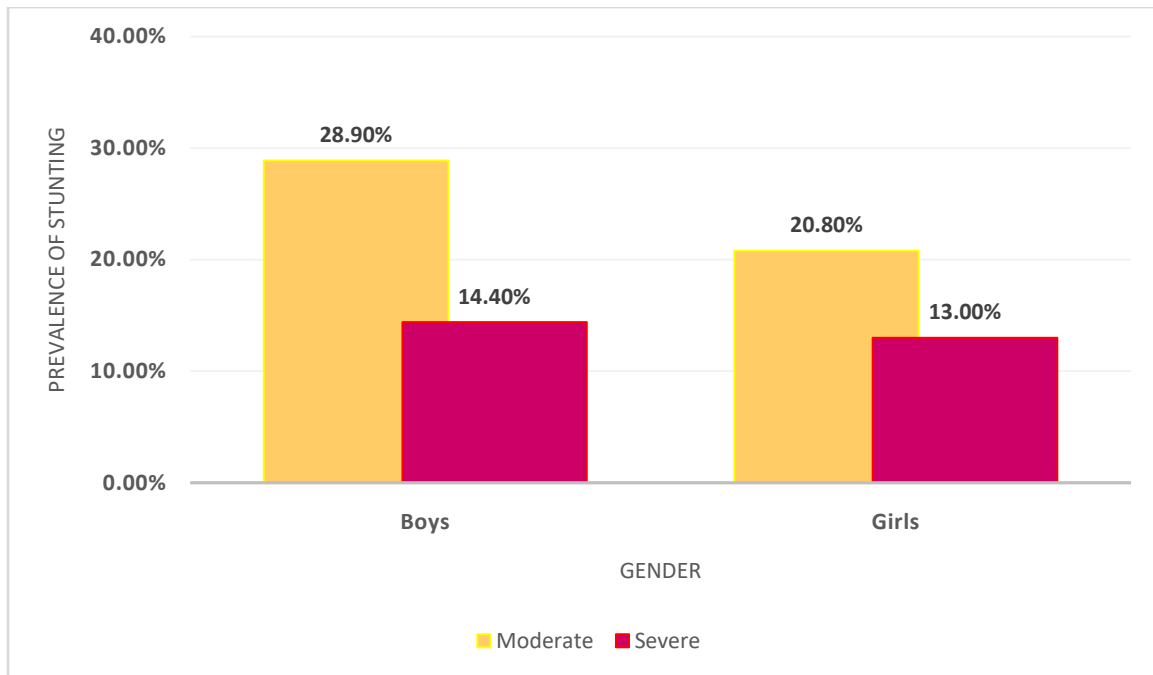
Gender	Percentage (%) of Moderate wasting	Percentage (%) of Severe wasting
Boys	13.40	7.20
Girls	19.50	0



**Figure: 3.5. Prevalence (%) of wasting in different age group among children (n<sub>1</sub>=174) at Kurseong block**

**Stunting**

The prevalence of stunting was 38.51%. About 25.29% children was moderately affected and the rest 13.22% children was severely affected. Boys was vulnerable to both form stunting. Approximately 28.90% boys and 20.80% girls were moderately stunted. About 14.40% and 13.00% girls were severely stunted. Moderately stunted children were high in 3-4 years age group (29.54%). Severe stunted was high in 1-2 years age group (43.48%), followed by 3-4 (17.39%) and 0-1 years age group (17.39%).



**Figure: 3.6. Prevalence of moderate and severe stunting among children ( $n_1=174$ ) at Kurseong block in different gender**

**Table: 3.7. Prevalence of moderate and severe stunting among children ( $n_1=174$ ) at Kurseong block in different age group**

Age group	Percentage of Moderate stunting (%)	Percentage of Severe stunting (%)
0-1years	9.09	17.39
1-2years	13.64	43.48
2-3years	15.91	13.04
3-4years	29.54	17.39
4-5years	15.91	8.70
5-6years	15.91	0

### Parents' Education

Near about 90% fathers and almost all mothers had not completed the primary education. The percentage of parents who had entered into college for further education was shocking. Only 5% fathers and 0.1% mother had went to college.

**Table: 3.8. Socio-demographic profile of parents (n<sub>1</sub>=174) of Anganwadi children at Kurseong**

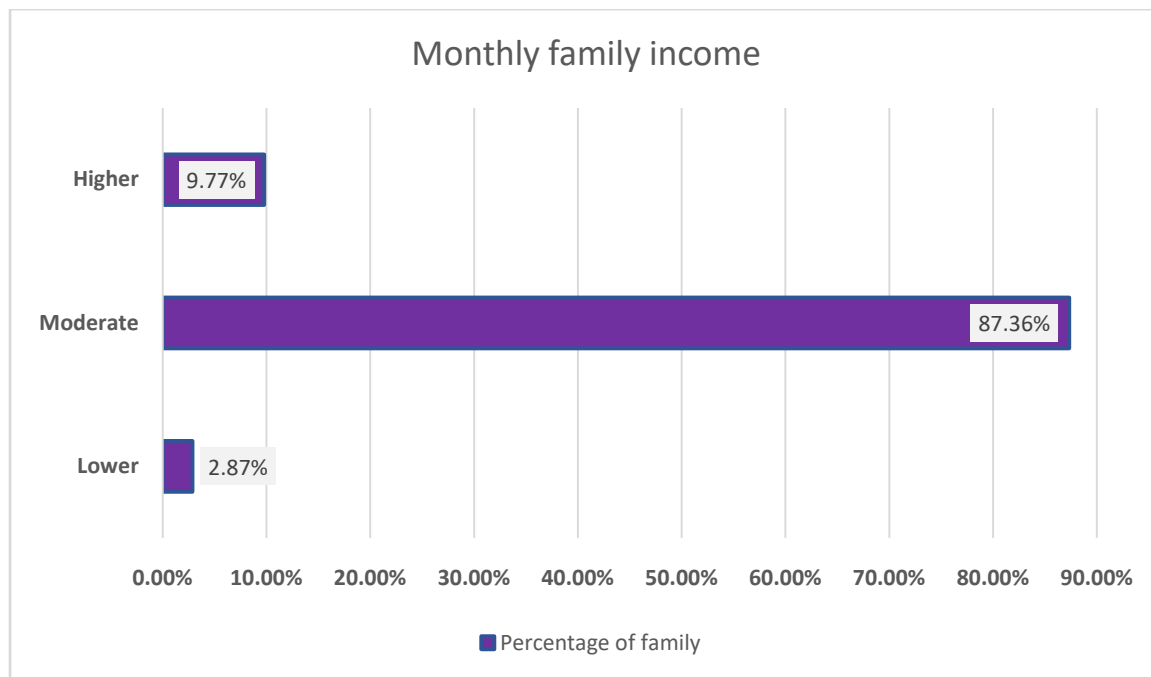
Parameter	Percentage (%)	
	Father	Mother
<b>Education</b>		
Below primary	88.51	98.84
Primary to HS	06.90	00.58
Above HS	04.59	00.58
<b>Occupation</b>		
Labourer or Housewife	36.78	37.36
Business holder	60.34	62.07
Service holder	02.88	00.57

### Parents' Occupation

Almost 60-62% parents were business holder. Only 3% fathers and nearly 1% mother were service holder.

### Monthly Family income

Family income of 87% children were belonged in moderate level. Only 2.87% had lower income level.



**Figure: 3.7. Percentage of monthly family income of the children ( $n_1=174$ ) at Kurseong block**

### **Mothers' Knowledge About Hygiene, Feeding, Cooking Technique and Family Planning**

Table 4.4.5. showed the knowledge of mother about weaning and feeding process of child, hygiene, different process of cooking and also family planning. About 89.90% mother had well knowledge about breastfeeding and colostrum. About 83.60% mother introduce weaning at correct age and attend AWCs. Only 67.40% mother maintain hygiene at proper level. Around 73.30% mother knew correct cooking process and 83.80% mother were conscious about family planning.

**Table: 3.9. Knowledge of mothers ( $n_1=174$ ) of Anganwadi children about hygiene, feeding and cooking technique and family planning at Kurseong**

Parameter	Aware (%)	Unaware (%)
Knowledge about exclusive breastfeeding, colostrum and proper breastfeeding technique.	89.90	10.10
Knowledge about introducing winning and foods to be given and regular present at AWW.	83.60	16.40
Knowledge about proper personal hygiene, use of footwear, safe drinking water and bathroom	67.40	32.60
Knowledge about proper cooking methods	73.30	26.70
Knowledge about care during pregnancy and what to eat, food taboos and family planning.	83.80	16.20

#### 4. Discussion

According to the guideline, double supplementary foods should supply to all the severely malnourished children. But actually, the status of nutrition of the children was put very informally and they also ignore the severely malnourished children. So, all the children were received same quantity food.

Age distribution data showed that highest percentage of children belonged to 3-4 years age group followed by 1-2 years age group. Sex distribution data evaluate that all the age group were dominated by boys except 0-1years and 4-5years. In 0-1years age group, the percentage of boys was dominated by the percentage of girls. In 4-5 years, both the gender placed equal percentage.

Evidence explained that for the detection of a case of a severe and moderate degree of malnutrition, the most accepted and simple method was to measure MUAC (Biswas 2010). Around 18% and 4% children were affected by moderate and severe malnutrition. Similarly, Dash (2008) studied that 60% children suffered by malnutrition and among them, 18% had moderate malnutrition. Children between 2-3 years and 3-4 years were more affected by the both degree of malnutrition than any other age group. The study done by Areplli and Rao (2016) evaluated that at Kallur PHC area in Kurnooll district, severe malnutrition spoke 58% and it was more predominant among children more than 3 years. Moderate malnutrition was high in girls whereas, severe malnutrition was doubled than the girls. Mukherjee (2014) also notices that malnutrition was high among boys.

About 26% children of were underweight including 20% children had moderate degree of underweight and the rest 6% children had severe degree of the same. Simiarly, Tyagi *et. al.* (2015) showed in their study that 25.73% children suffered from underweight including 23.32% and 2.42% had moderate and severe degree of underweight, respectively. Moderate underweight spread equally in both genders. But in case of boys, severe underweight was doubled than the girls. Kumar *et. al.* (2006) also found that the percentage of male underweight children was more than the female children. Shanawaz *et. al.* (2013) also found similar output in their study. Moderate underweight was high in 1-2 years and gradually reduced in the following age groups. Severe underweight spoke in 2-3 years followed by 3-4 years. No severe underweight was found in 0-1 years and after 4 years.

Study evaluated 20% wasting including 17% and 4% moderate and severe degree respectively. Bandopadyay *et. al.* (1988) also found that in Mumbai, wasting was 17% among

school going children. Severe wasting was high in boys and mainly affected only 1-2 and 2-3 years age groups. Kumari *et. al.* (2017) reported maximum wasting among 6 months to 1.5 years children. Dogra (2013) also found both the forms of wasting were common among 3 to 4 years.

Stunting was very high in this study nearly 39%. Mathad *et. al.* (2013) reported 36.6% stunted in Karnataka. Almost 25% had moderate level of stunting and the remaining 13% had severe level. Similarly, Kumari *et. al.* (2017) found 11% and 29% severe and moderate stunting, respectively. Both forms were high in boys. Fazili *et. al.* (2012) also showed stunting was more in boys than girls. Moderate stunting was more in 3-4 years age group whereas, severe stunting was predominant in 1-2 years age group.

Almost 36-37% parents were labourer or housewife (in case of female). A study was conducted by Brahman *et. al.* (2011) showed that major occupation of the father of the children were owner cultivators (53.8%) followed by labourer (25.6%), agricultural labourer (3.3%), artisans and business (1.3% each) at Umari district in Madhya Pradesh. A huge percentage of parents was not completed primary education level. In spite of their educational level, above 70% mothers had positive knowledge about the health aspects.

## 5. Conclusion

Only 4% children were affected by severe malnutrition and it was high among boys. Stunting was also highest in this area and the boys was the main victims. It indicates chronic under nutrition was predominant in this area. The severity of stunting was high among 1 to 2 years age group.

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