

A Study Of Food Consumption Pattern & Nutritional Status Among T.B Patients In Government Hospital At Ranchi, Jharkhand

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Abstract: TB continues to be a major public health problem in India & results in a high burden of morbidity and mortality. Though India is 2nd largest populated country in the world, it accounts for nearly 26% of the global TB burden. **Objective:- (1) To obtain the food consumption pattern of patients during the food consumption pattern of patients during the course of treatment at DOTS centre running at govt. hospital at Ranchi district of Jharkhand. (2) Assessment of knowledge regarding therapeutic diet regime, cleanliness, prevention and cure of disease.** A cross sectional descriptive and community based pilot study was conducted at DOTS centres running at Sadar Hospital and PHC Doranda . A total of 50 patients of age group 10 and above were included in the study. Interview schedule was used for data collection. Data were entered in ms excel and analysed. Out of 50 patients majority were female (56%) between the age group 40 & above (61%), Hindu(78%), illiterate(36%) belonged to lower income group(62%) having poor hygiene status(70%) with no knowledge of TB (44%) and no knowledge of importance of diet (72%) with no consumption of protein or calorie food (64%) and belonged to low BMI status 90%. An overall improvement in education, socio-economic status, living conditions, sanitation and hygiene with correct knowledge of TB & its nutrition is necessary to decrease the prevalence of tuberculosis.

Keywords :- Tuberculosis, Dots centre, RNTCP, Smear, HIV/AIDS, NIKSHAY, NSP, LPG, ignorant, recognitive.

INTRODUCTION

Tuberculosis (TB) is a contagious infectious disease caused in humans mainly by Mycobacterium tuberculosis (MTB). MTB is spread essentially through air when an infectious person coughs, sneezes, talks or spits, saliva droplets containing tubercle bacilli which are projected into the air and can be inhaled by a nearby person.¹ Transmission occurs by air borne spread of infection droplets and droplet nuclei containing the tubercle bacilli, when a person inhale, those micro particles get lodge in the terminal bronchiole and the alveoli to infect a person.² The source of infection is a person with sputum smear positive pulmonary tuberculosis³ Each sputum positive case can infect 10-15 individual in a year if not treated.⁴

As per the Global TB report 2017 the estimated incidence of TB in India was approximately 28,00,000 accounting for about a quarter of the world's TB cases.⁵

Tuberculosis is spread through the air, which means you can only get it by breathing contaminated air. If someone who is actively sick talks, coughs, sneezes, or speaks they can spread TB..The majority of people exposed to the bacteria don't experience TB symptoms right away.^{6,7} Tuberculosis is more likely to enter the active phase in people who have acquired the infection recently (in the past two years). It's also more likely to be active among those whose immune systems are weakened as a result of malnutrition, old age, infection with HIV, immunosuppressant drugs, or among people who are on dialysis.^{8,9,10}

Worldwide, TB is one of the top 10 causes of death and the leading cause from a single infectious agent (above HIV/AIDS). Millions of people continue to fall sick with TB each year. In 2017, TB caused an estimated 1.3 million deaths (range, 1.2–1.4 million) among HIV-negative people and there were an additional 300 000 deaths from TB (range, 266 000–335 000) among HIV-positive people. Globally, the best estimate is that 10.0 million people (range, 9.0–11.1 million) developed TB disease in 2017: 5.8 million men, 3.2 million women and 1.0 million children. There were cases in all countries and age groups, but overall 90% were adults (aged ≥ 15 years), 9% were people living with HIV (72% in Africa) and two thirds were in eight countries: India (27%), China (9%), Indonesia (8%), the Philippines (6%), Pakistan (5%), Nigeria (4%), Bangladesh (4%) and South Africa (3%). These and 22 other countries in WHO's list of 30 high TB burden countries accounted for 87% of the world's cases. Only 6% of global cases were in the WHO European Region (3%) and WHO Region of the Americas (3%). Drug-resistant TB continues to be a public health crisis. The best estimate is that, worldwide in 2017, 558 000 people (range, 483 000–639 000) developed TB that was resistant to rifampicin (RR-TB), the most effective first line drug, and of these, 82% had multidrug-resistant TB (MDR-TB). Three countries accounted for almost half of the world's cases of MDR/RR-TB: India (24%), China (13%) and the Russian Federation (10%). About 1.7 billion people, 23% of the world's population, are estimated to have a latent TB infection, and are thus at risk of developing active TB disease during their lifetime¹¹.

Jharkhand a major TB burden state in India is among the 5 India states that are lowest on the Human Development Index & is predominantly a tribal state. Records show that about 13000 persons die of TB every year in Jharkhand that is 35 persons per day. RNTCP was launched in Jharkhand in September 2000 under the guidance of central TB Division, GOI, with Ranchi & Palamu as the first two implementing districts which was scaled up in a phased manner with complete geographical coverage with inclusion of Godda & Giridih. State TB cell under "Jharkhand Rural Health Mission Society TB control programme" & 24 districts TB centres under "District health societies – TB control programme" have been established to supervise and monitor the implementation of this programme effectively. Detailed planning for implementation of the programme is done at state & District levels. Jharkhand has made rapid progress in expanding TB control services under Revised National TB control programme. Currently entire state population is having access to DOTS under the RNTCP. As on today all 24 districts in the state are implementing the programme as per the guidelines of central TB Division & Jharkhand Rural Health Mission Society (JRHMS) to ensure the free quality services to TB patients.¹²

MATERIAL AND METHOD

This study was a cross-sectional, descriptive and community based study. The present study was carried out at DOTS centres running at Doranda PHC & Sadar Hospital at Ranchi district of Jharkhand. The pilot study was informed and advocated to the concerned District RNTCP officer of state TB cell. DOTS centre examines smear positive cases by DMC (Designated microscopy centers) where sputum microscopy is done of suspected patients. After diagnosis of positive smear sputum test, Anti-TB drugs are provided to the patients. Those patients who were >10 years (both pulmonary and extra pulmonary) having history of cough for 2 weeks or more were included as study subjects. All patients registered in DOTS centre were interviewed by schedule. A total of 50 patients were interviewed between October 2017 to December 2017. Data collected through information & was divided in 3 sections. 1st section showed socio-demographic profile which included name, address, gender, age, religion, education, income, marital status, fuel, drinking water, housing condition and locality cleanliness with respect to air, light space & ventilation. Following were the criteria for grading as good, air, bad & worst in locality cleanliness –

- (1) Door to door garbage collection.
- (2) Installation of litter bin at all needed places.
- (3) Covered drainage system.
- (4) Boring or supply water.
- (5) Electricity.
- (6) Single toilet for every family member.
- (7) Toilet inside house.
- (8) Proper ventilated rooms.
- (9) LPG

Good	Fair	Worst
>8	6-8	<4

Further, income group was sub categorised as BPL, Low income group middle income group & upper middle income group. Following is the income chart given by World Bank 2016.

Category	Income
BPL	< \$ 1.95 per day (RS 130/-)
Low income group	1,00,000- 2,00,000 per year
Middle income group	8-12,00,000 per year
Upper middle income group	24,00,000 per year

2nd section dealt with the knowledge regarding T.B that is mode of transmission, duration of T.B infection, family history, curing factors, source of knowledge.

3rd section comprised of nutritional profile and status which included height, weight, BMI, food habit, food consumption pattern. An overview of 24hrs. dietary recall was also taken of the patients were informed about the purpose of this study and role of data collection so as to obtain full participation, free & frank answers. Statistical analysis was done in pre-designed Microsoft Excel 2007.

RESULTS

In the present study of 50 respondents who were interviewed, 22, 44% were male subjects and 28, 56% were female subjects. About 18, 36% persons were illiterate and rest 32, 64% persons were educated. Just 6, 12% respondents showed positive case of family history of TB. Coming on to income group, 9, 18% respondents belongs to BPL category, 22, 44% belong to lower income group & 18, 36% belong to middle group. Demographic features that is housing conditions in terms of air, light spaces were considered during the pilot study 14, 28% respondents lived in kaccha houses, 17, 34%, lived in asbestos while 19, 38% lived in pakka houses majority of respondents used 22, 44% tap water as usual locality cleanliness of the respondents whom was fair were 15, 30%, 27, 54% has bad conditions while 8, 16% had worst cleanliness. For cooking purpose 32, 64% respondents used LPG, 15, 30% respondents depended on wood charcoal as fuel and just 3, 4% used cow dung cakes. Knowledge regarding nutrition was also considered an important key factor while screening the patients. 24, 48% subjects knew at all coming on to dietary principles 18, 38% respondents took High protein/High calorie diet while majority 32, 64% respondents took none of above. High protein sources like fish, egg, milk were included in only 20, 40% respondents diet on weekly, bi- monthly, monthly basis. BMI variables also varied widely as majority of respondents 50%. Fell in 16-16.9 BMI with low weight (41-43kg). 40% respondents with BMI 17-18.4 has just weight ranging in 43-47kg. Minority of the respondents i.e. 10% were in BMI range 18.5 – 22.9 with weight scale ranging from 47-58 kg. Discussing about the current knowledge of nutrition, 35, 70% subjects had low knowledge level, 13, 26% subjects had average knowledge level while just 2, 4% had good nutrition knowledge regarding tuberculosis.

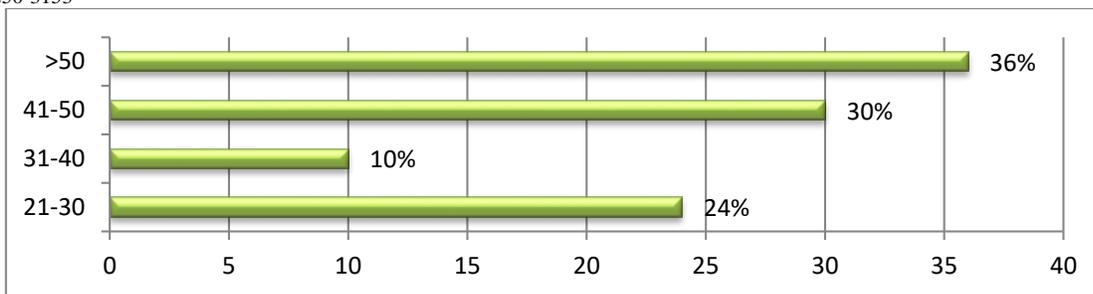
Table 1 :- Sociodemographic characteristics of the respondents. (n=50)

Socio demographic variables	Number n=50	Percentage
Age		
10-20	0	0
21-30	12	24
31-40	5	10
41-50	15	30

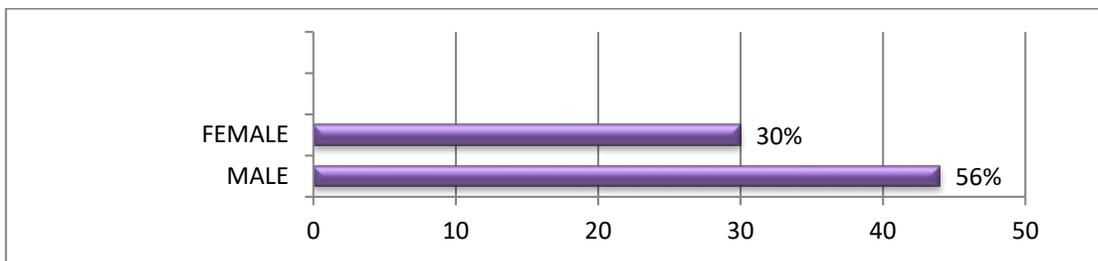
>50	18	36
Gender		
male	22	44
female	28	56
Educational status		
Illiterate	18	36
matric	12	24
Intermediate	12	24
Graduation	8	16
Economical group		
BPL	9	18
LIG	22	44
MIG	18	36
UMIG	1	2
Housing condition		
Kaccha	14	28
Asbestos	17	34
Pakka	19	38
Flat	-	-
Locality cleanliness		
Good	-	-
Fair	15	30
Bad	27	54
worst	8	16
Type of fuel		
coal	15	30
Wood/charcoal		
Cow dung cake	3	6
LPG	32	64

PERCENTAGE DISTRIBUTION OF SOCIO-DEMOGRAPHIC VARIABLES (n=50)

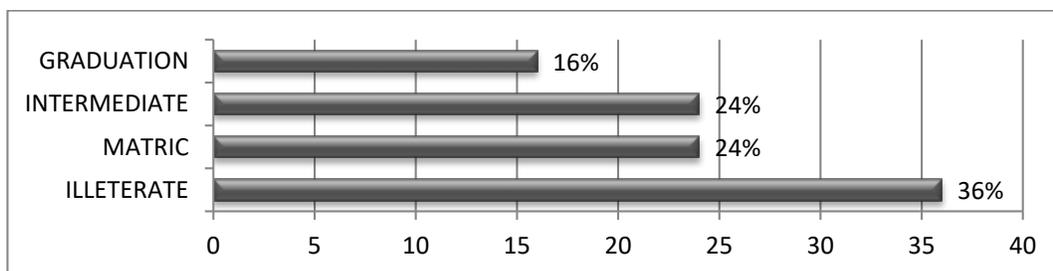
1. AGE



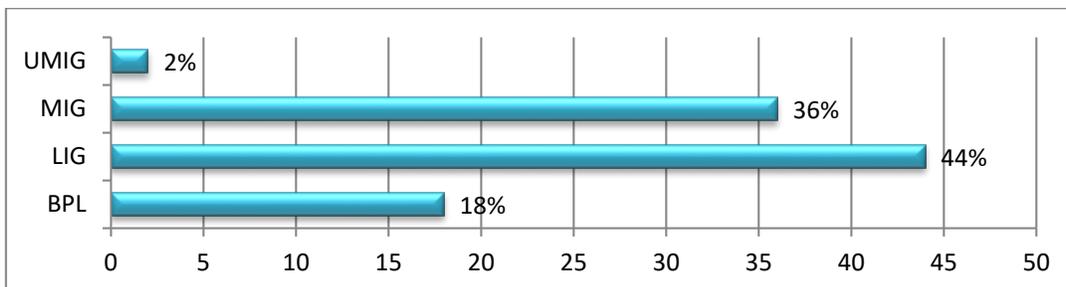
2. GENDER



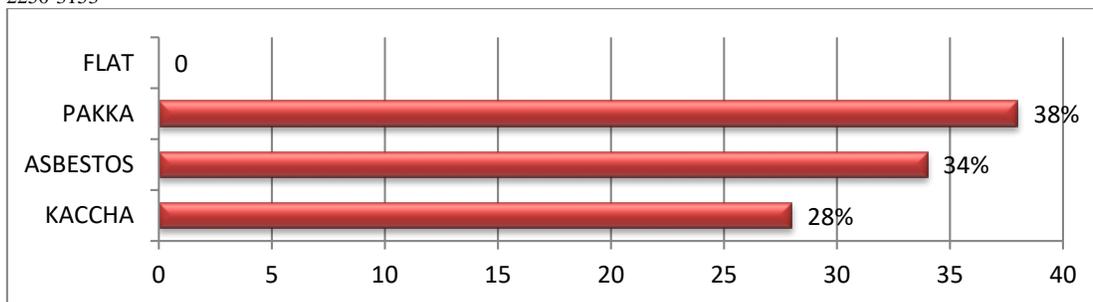
3. EDUCATIONAL STATUS



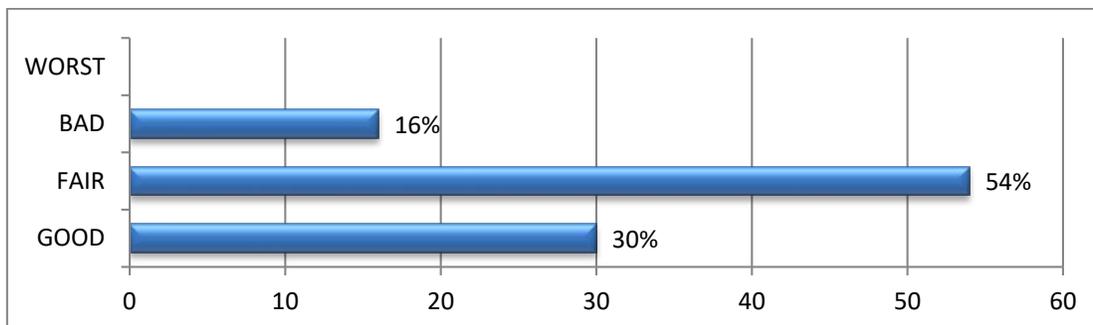
4. ECONOMICAL GROUP



5. HOUSING CONDITION



6. LOCALITY CLEANLINESS



7. TYPE OF FUEL

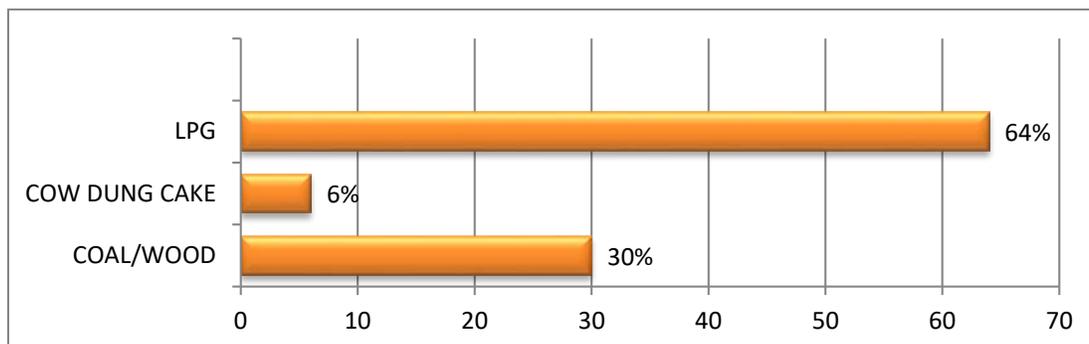


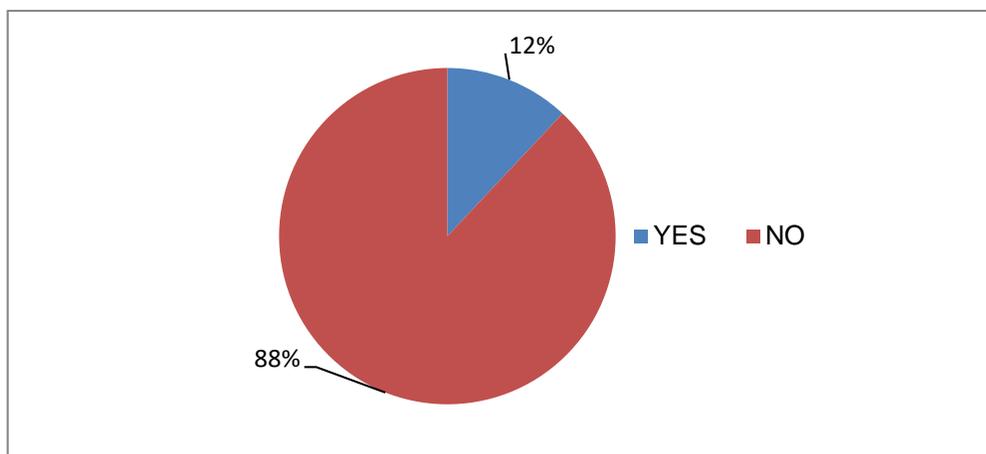
Table 2 : Knowledge regarding TB

Aetiological variables	NO.	Percentage
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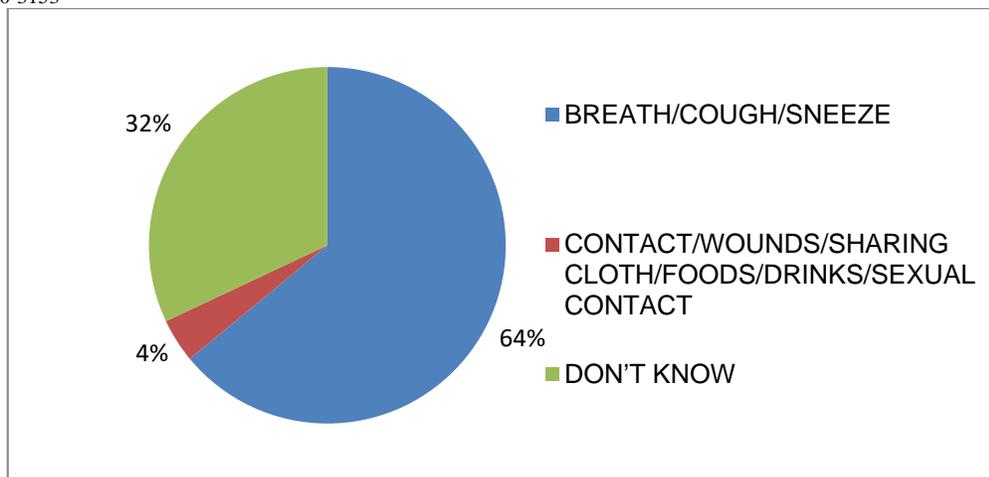
Family history		
yes	6	12
No	44	88
Mode of Transmission		
Breathing/Cough/Sneezing	32	64
Contact & wounds		
Sharing cloths/foods/drinks	2	4
Sexual contact		
Don't know	16	32
Nature of cure		
DOTS	39	78
DIET THERAPY	1	2
DOTS + DIET Therapy	5	10
Don't know	5	10

PERCENTAGE DISTRIBUTION OF KNOWLEDGE REGARDING TB (n=50)

1. FAMILY HISTORY



2. MODE OF TRANSMISSION



3. NATURE OF CURE

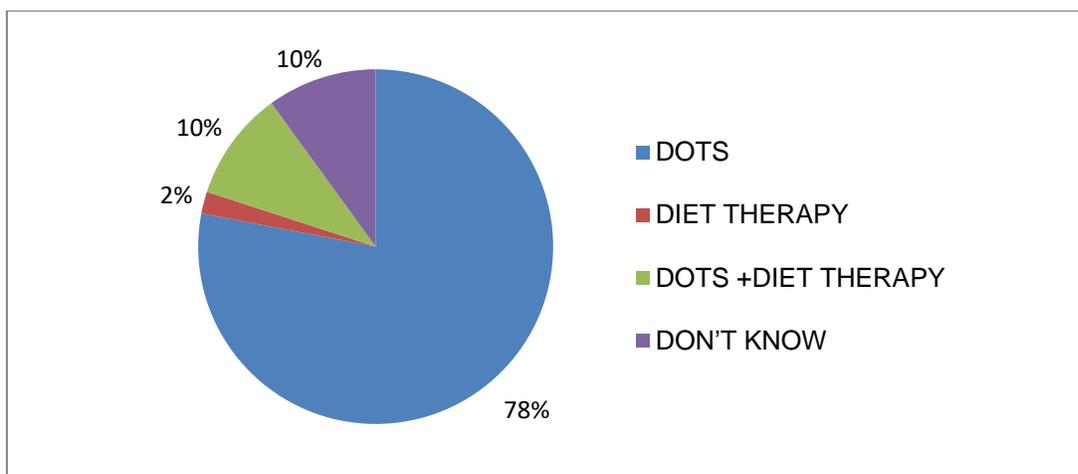


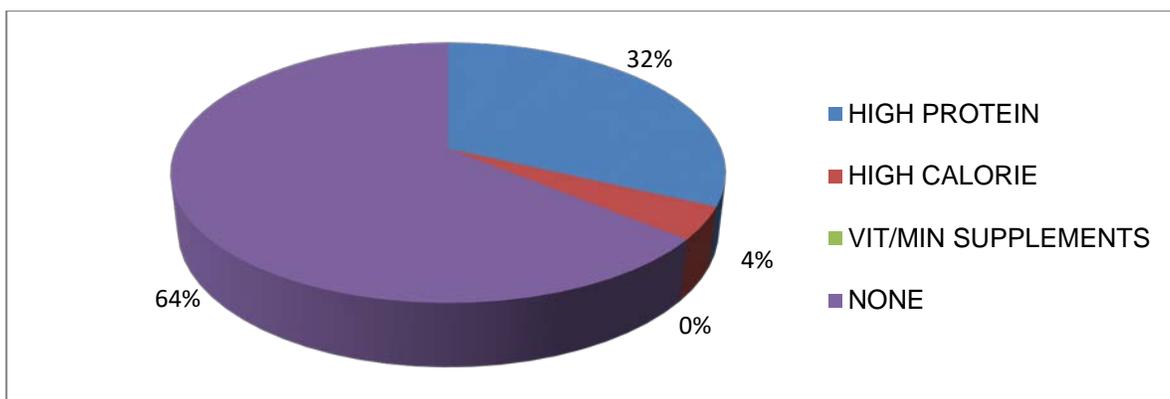
Table 3 : Nutrition knowledge regarding TB

Dietary Variables	No.	Percentage
Dietary Principles		
High protein	16	32
High calorie	2	4
Vit/Min supplements	-	-
None	32	64
High Protein Sources		
Milk	15	30
Egg	12	24
Meat/Fish	10	20
None	13	26
Current nutrition knowledge		
Low	35	70
Average	13	26
Good	2	4

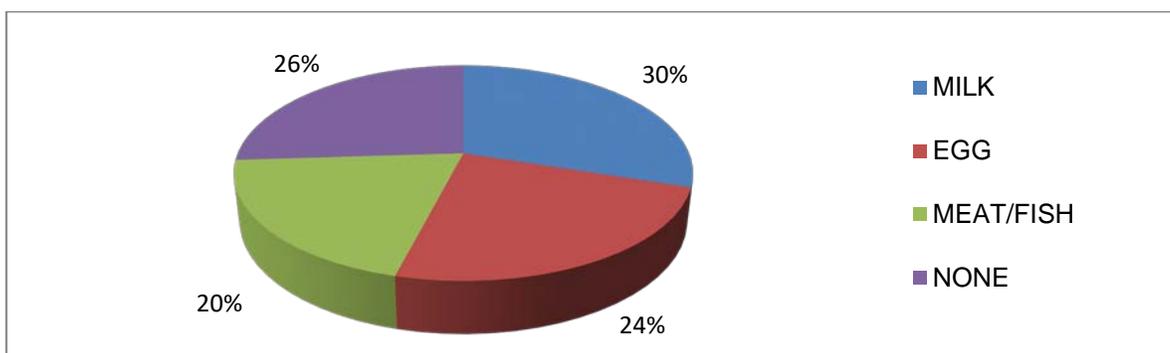
Best	-	-
BMI variables		
18.5-22.9 (47-58kg)	5	10
17-18.4 (43-47kg)	20	40
16-16.9 (41-43.5kg)	25	50

PERCENTAGE DISTRIBUTION OF NUTRITION KNOWLEDGE REGARDING TB (n=50)

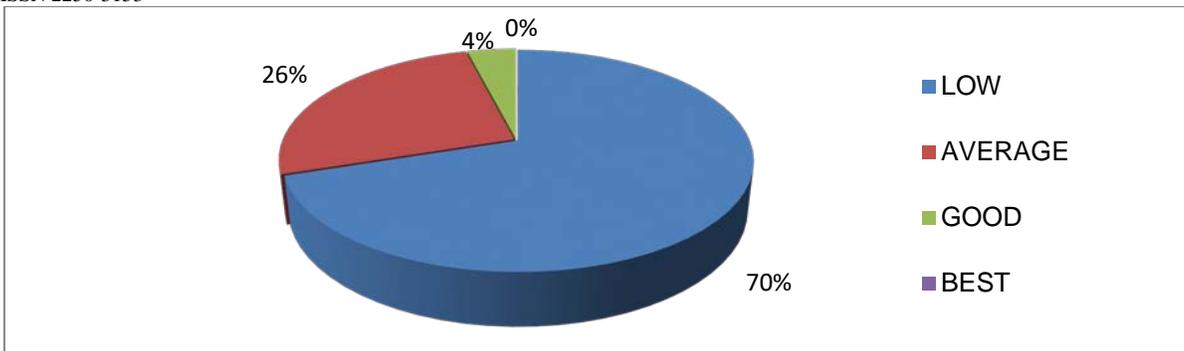
1. DIETARY PRINCIPLES



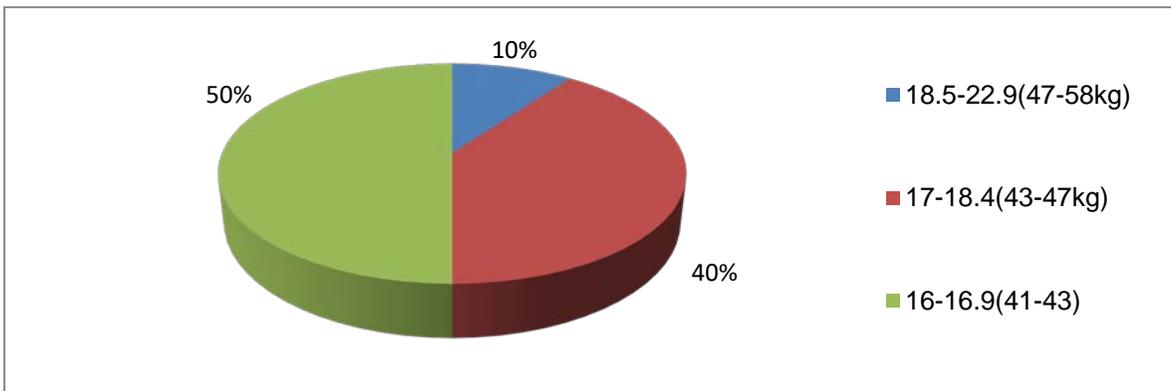
2. HIGH PROTEIN SOURCES



3. CURRENT NUTRITION KNOWLEDGE



4. BMI VARIABLES



DISCUSSION

From the present study it was found that female respondents (56%) were greatly affected than male. The reason behind this difference is that female more often indulge in household activities and often ignore their initial symptoms due to their responsibilities towards family and children majority of the age group affected with TB was between (40-50)yrs and 50yrs above. The possible reason behind this may be as males and young adults of ages (21-35)yrs had greater awareness about TB & its prevention. It was also noticed that TB was highly prevalent (36%) among illiterate respondents than illiterate one. The reason behind is that the level of education is directly proportional to the health seeking behavior of TB patients. Studies done by socio-economic factors reveals that majority (62%) of TB patients belonged to lower socioeconomic class. It reveals that patients from BPL families, or lower income group that are struggling against poverty and underdevelopment get easily infected from outside environment due to poverty & under nutrition. Coming to family history only 12% respondents share family history & 88% has no family history of TB. So we cannot determine family history as a tool for a common cause of TB. Discussing about the demographical data analysis 70% respondents lack in housing and locality cleanliness in terms of proper covered drainage systems, clean road ventilated rooms, installation of litter bins, garbage disposal, toilets, clean drinking water etc. Thus we can say TB becomes a massive disease burden if associated with deficient in hygiene, sanitation & clean drinking water. It was also noticed that 84% patients were infected with pulmonary TB either latent or active type & just 16% cases were of extra pulmonary. This shows that TB being an air borne disease with high communicability world wide.

Discussing about the TB knowledge associated factors of this study 44% subjects stood for poor knowledge about TB signs symptoms causes, mode of transmission. 46% had partial knowledge while correct knowledge about the cause of TB held on just 10% respondents. The knowledge was analyzed after determining various components for assessing the knowledge which include mode of transmission, causes, treatment and duration of treatment. It suggests that appropriate knowledge is of prime importance for control and prevention of TB.

Finally assessing the nutritional status and importance of diet therapy, 72% respondents had no idea of diet in TB. Only 36% subjects included high protein high calorie food in their diet but not on regular basis. Inclusion of milk, egg, fish, soya in their diet was either in small amount or in moderation. But which is recommended that is high amount was totally negligible TB patients did not know what to include and what not to include in daily diet. Majority of 90% respondents were in low BMI grade that is (16-16.9) & (17-18.4). It shows they were highly malnourished and underweight muscle wasting & weight loss. So, respondents could not fulfill their BMI criteria.

CONCLUSION :

From the above study we conclude that majority of the patients with female gender high in number which fall on higher age group and belongs to lower economic class (or rural background) contribute maximum of TB population in Ranchi district and nearby. Their lower literacy rate makes them ignorant, less recognitive, less knowledgeable & so they easily gets infected their unhygienic housing and surrounding condition makes them highly vulnerable to infection. Also we conclude that their low nutritional status makes them malnourished and underweight which ultimately pushes them to be infected easily. Thus a better food consumption pattern needs to be effective during the course of treatment under DOTS making them quick recover from disease and help build immunity and sound health.

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