

## **Assessing nutritional status and promoting awareness among male and female labourers aged between 18 to 50 years in and around Kolkata in the year 2016**

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### **Abstract**

Indian economy has a labour sector which consists of almost 487 million workers, the second largest after China. Over 94 percent work is unincorporated in unorganised enterprises ranging from vendors, road workers etc. and there is no job security. The present study focuses on giving proper dietary guidance and ways of curbing malnourishment. Male and female samples (n=100) of age group 18 to 50 were selected after seeing that maximum of the labourers fall under this age group. Child labourers were excluded from the study. A survey was planned to assess the demographic profile, health status, standard of living and occupational hazards among the subjects. The survey reported a diet rich in protein, carbohydrate and low in fat. Iron, sodium, potassium and various micronutrients and vitamins were missing. Being heavy workers, deficiency in the vital nutrients would welcome future health complications. In order to tackle this situation they were made aware of keeping good health. Keeping their economic status in mind, they were advised to incorporate cheaper yet healthy ingredients in their diet and the importance of balanced diet.

**Keywords:** labourers, malnutrition, micronutrients, deficiencies, health

### **1. Introduction**

Labourer is a person who owns labour. It is a person engaged in some work. He or she is a person who does one the construction, trades, traditionally considered unskilled manual labour as opposed to skilled labourers [22]. No two persons possess the same quality of labour. Skills and efficiency differs from person to person. So, some workers are more efficient than others in the same job. The unorganised sector also known as informal sector or own account enterprises, refers to all unlicensed, self-employed or unregistered economic activity such as owner manned general stores, handicrafts and handloom workers, rural traders, farmers, etc [22].

48.5% of the general population of India India's Ministry of Labour are Women, in its 2008 report, classified the unorganised labour in India into four groups. This classification categorized India's unorganised labour force by occupation, nature of employment, specially distressed categories and service categories. The unorganised occupational groups include small and marginal farmers, landless agricultural labourers, share croppers, fishermen, those engaged in animal husbandry, beedi rolling, labelling and packing, building and construction workers, leather workers, weavers, artisans, salt workers, workers in brick kilns and stone quarries, workers in saw mills, and workers in oil mills. A separate category based on nature of employment includes attached agricultural labourers, bonded labourers, migrant workers, contract and casual labourers. Another separate category dedicated to distressed unorganised sector includes toddy tappers, scavengers, carriers of head loads, drivers of animal driven vehicles, loaders and unloaders [11, 22].

The last unorganised labour category includes service workers such as midwives, domestic workers, barbers, vegetable and fruit vendors, newspaper vendors, pavement vendors, hand cart operators, and the unorganised retail. Poverty rates are reported to be significantly higher in families where all working age members have only worked the unorganised sector throughout their live.

Agriculture, dairy, horticulture and related occupations alone employ 52 percent of labour in India [12].

Malnourishment in labourers- A survey conducted by the city-based 'Arogya Sena' has revealed that 24% of workers in the unorganised sectors are malnourished. The results of the survey, conducted in 2013, have recently been released. The survey sought to assess the impact of rising food prices on the diet of daily wage labourers.

"The current scenario of continuing cost inflation raises a serious concern about food and the nutritional security of the poor. The continuous rise in food prices has eroded the purchasing power of the workers of the unorganised sector" said cardiologist Dr. Abhijit Vaidya. Workers of the unorganised sector are worst hit because food, to begin with, has always been unaffordable for them and higher prices have only made things worse, said Dr. Vaidya [13, 22].

There is no doubt the urban poor has enjoyed some increase in income as a result of high economic growth and liberalisation of the economy. Yet, a vast majority of them living in rural areas are dependent on meagre incomes from agriculture and low-productivity jobs from non-agricultural activities, which rise and fall with the ebb and flow of precarious events [13, 22].

While doing the survey on male and female labourers of India it was seen this part of the society is neglected a lot. Though

they form an integral part of the society, still only little is cared about their health status by the country. They are unaware of their own benefits. They need support and help regarding knowledge gain about their own betterment, health and hygiene.

Food habits of people are deeply influenced by their culture and occupation. Some of the food habits responsible for specific types of nutritional disorders may be seen in such group of people. Daily wages labourers are generally poor people who spend most of their time away from their homes hence they are highly prone to food borne illnesses/malnutrition [3, 19, 22].

They mainly eat cereal and pulses as they are cheaper. They have limited list of vegetables which they have in plenty. They cannot afford fish, meat, milk and fruits on a daily basis, but they do have egg often.

Keeping in mind all the factors, the items which were cheap was listed. The labourers were asked what the foods they mostly have are Rice, puffed rice, rice flakes, atta, roasted gram flour, green gram dal, tuvr pulses, pointed gourd, bottle gourd, ladies finger, brinjal, banana, were the most consumed items.

After the survey, it was seen that they have deficiency diseases like night blindness, anaemia and also their meal lacked fat, sodium, potassium which were extremely necessary for heavy workers. They were also unaware about the amount of each item they should take and also about a proper balanced diet.

## 2. Material and Methods

**2.1 Sample-** Both male and female workers from construction sites, road workers and workers in kiln were selected for the

study. The inclusion criterion of age was people from 16 years to 50 years. The exclusion criteria were children and people aged more than 50 years. People suffering from chronic diseases were also excluded from the study.

**2.2 Data Collection:** A nutritional survey was conducted on the above sample at places of Kalyani and Kolkata. Kalyani is a small town in the Nadia District of West Bengal State, India and Kolkata is one of the major metropolitan cities of India. The survey monitored the diet, nutritional status and lifestyle of the labourers.

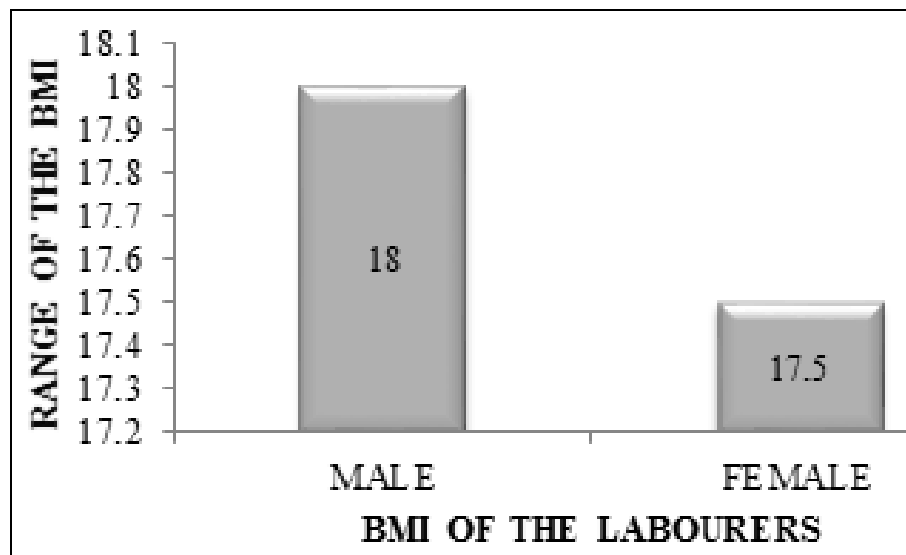
Data were collected based on diet, height and weight. From this data, their BMI (Body mass index) was calculated. 3 day dietary recall method was followed. Standard cups and glasses were shown for proper measurement of food.

Construction of questionnaire- A pre-designed, structured, close-ended questionnaire was used as the tool. Questionnaire was constructed based on certain facts like their working time, type of labour, daily food intake, illnesses, monthly income, dietary pattern, health status, living conditions etc.

**2.3 Data Management:** The information obtained from the structured questionnaire is segregated into relevant sections and the findings were related to derive inferences about the nutritional status of the sample of the study.

## 3. Results & Discussion

**3.1 Nutritional status-** The normal BMI range starts from 18.5 to 22.9 and below 18.5 it is underweight. According to the survey both the female and male labourers were mostly underweight.



**Fig 1:** Body mass index (BMI) of the labourers

**3.2 Macronutrients-** Carbohydrate- More than 80% of the labourers consumed 3 meals per day and snacks in between. According to RDA, the carbohydrate requirement for a male is 610.75gm and for a female is 498.75gm [20]. but from the survey it was seen that they consume a lot of starchy food as flour, rice, rice flakes. Cereals are cheaper and provide satiety;

hence it is a preferred option among economically challenged population. As their profession demands high energy requirement this choice of food helps them to suffice the need. So basically their diet is carbohydrate and energy rich. The survey reported that the males intake more of cereals than females.

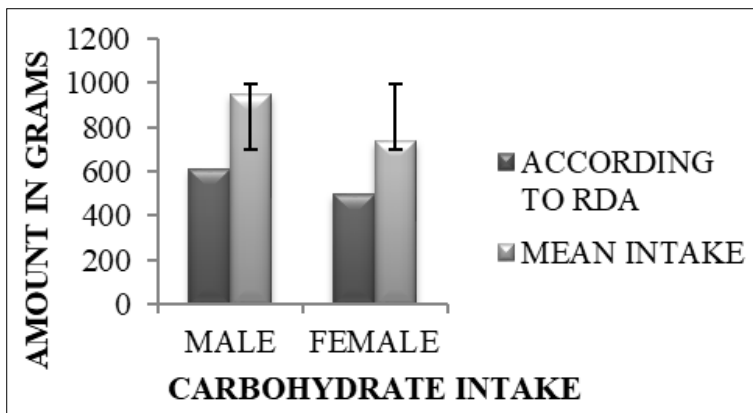


Fig 2: Carbohydrate intake by the labourers

Protein- Protein requirement for a heavy worker male per day is 60gm based on his ideal body weight whereas for female it is 55gm [20]. According to survey the mean value of their actual intake varied. For male it was 113.8gm and for female

it was 95.4. But this was not good quality protein. This protein came from the carbohydrate rich foods. Subtle contribution also came from milk, egg and fish consumed twice or thrice a week usually.

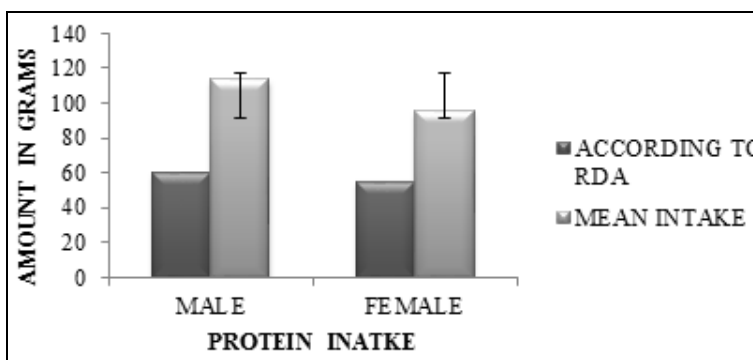


Fig 3: Protein intake by the labourers

Fat- Due to their low economic status the respondents could not afford to purchase sources of visible fat like oil, ghee, butter, etc. It was seen from the survey that the fat content of male diet is 25.75 gm female diet is 20.25 gm which is 14.25 gm and 9.25 gm deficit respectively as compared to the RDA. The major sources of fat were cooking oil, carbohydrate rich food, milk and egg.

make up the vitamin C content in their diet. They cannot afford fruits like apple, orange, pineapple every day. But they have plenty of banana and guava sometimes. By the survey, for male it was 35mg. The diet of the male labourers was rich in iron as requirement for male is 17mg and from the diet it was seen it was 30.4mg for male. The iron came from mainly cereals, few pulses and fish. and 18.2mg for female and for female it was 30mg. For female, it was seen their diet lacked iron and majorly they were anaemic. for female 21mg [20].

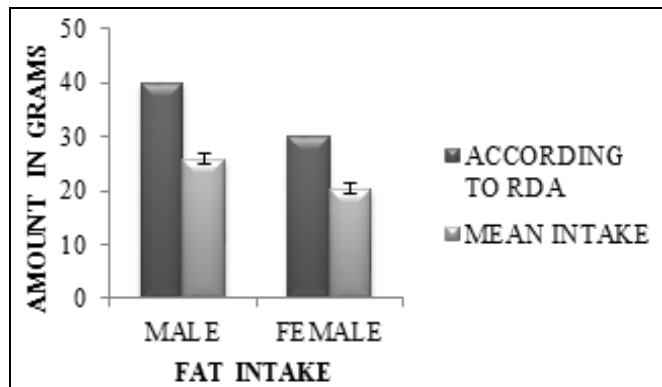


Fig 4: Fat intake by the labourers

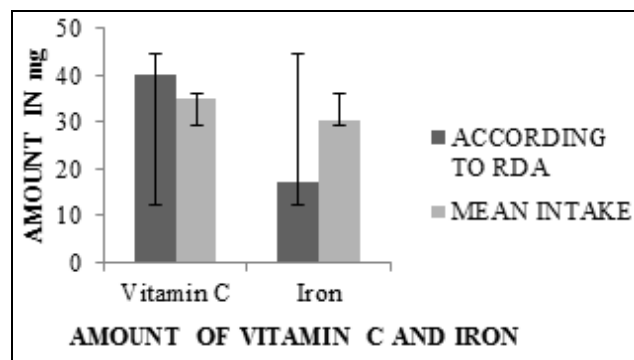


Fig 5: Vitamin C and iron intake by the male labourers

Micronutrients- Vitamin C requirement for male is 40mg. They have some amount of citrus fruits which helped them to

On the other hand, the vitamin C for female is also 40mg [20].

They also have same types of fruits and according to the survey the amount of vitamin C they get from diets is 30mg. The iron requirement for female as per RDA is 21mg. Though

their diet has cereals, fish and egg but their intake amount is less than male. So their mean intake has come to 18.2mg leading to anaemia.

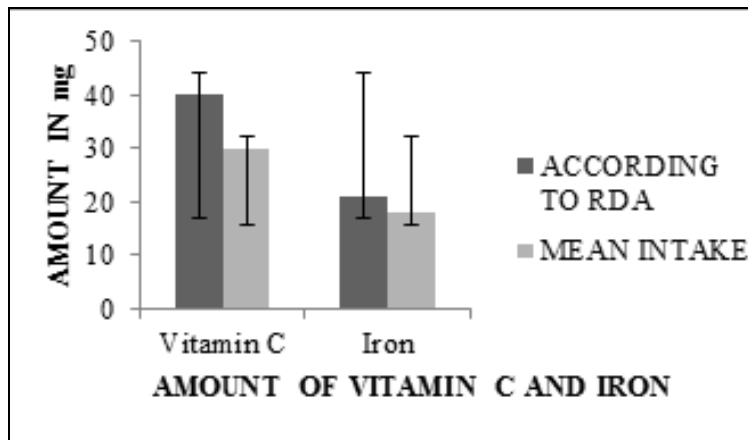


Fig 6: Vitamin C and iron intake by the female labourers

Vitamin B1 and B2- According to RDA, vitamin B1 requirement for male is 1.7mg and vitamin B2 requirement is 2.1mg [20]. Due to some ingredients in the diet, like excessive cereals or pulses, their vitamin B1 requirement was met but

their diet lacked vitamin B2. They could not afford to have milk, meat every day. Little bit was got from pulses, egg and fish. Mean intake for Vitamin B1 was 3mg and Vitamin B2 was 0.73mg.

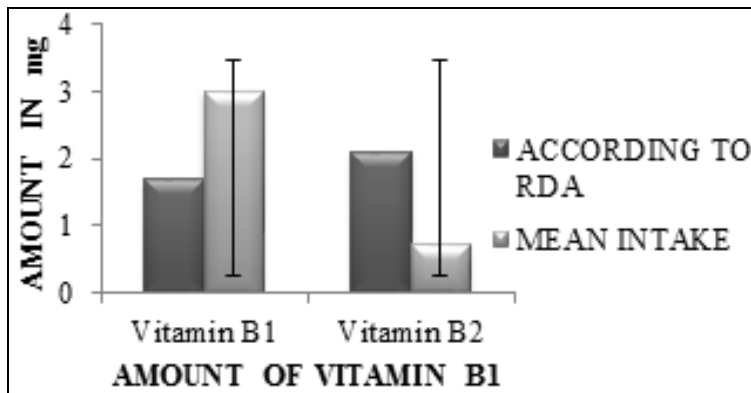


Fig 7: Vitamin B1 and B2 intake by the male labourers

According to RDA, requirement of Vitamin B2 for female is 1.4mg [20] and it was met by same sources as mentioned above

for male which was 2.3mg. But the requirement for B2 is 1.7mg and their mean intake due to the diet is only 0.62mg.

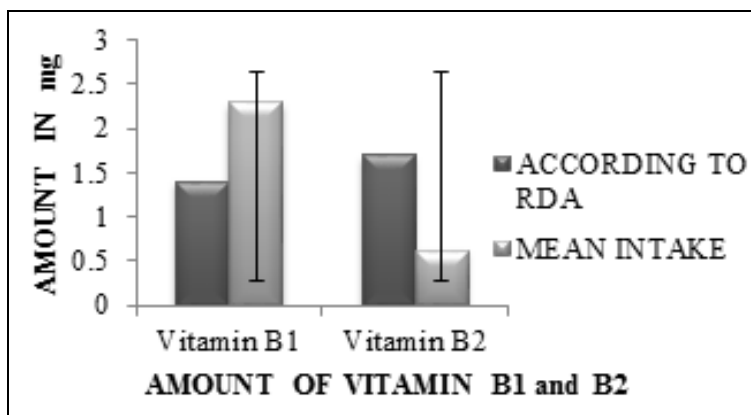


Fig 8: Vitamin B1 and B2 intake by the labourers

Sodium and Potassium- According to RDA, sodium requirement for male is 1500mg. Their diet had enough sodium. They got sodium mainly from table salt and fish, some amount from cereals and pulses. The potassium requirement was 4700mg<sup>[20]</sup> But their diet lacked potassium

as they did not consume enough of fruits. They lost a large amount of sodium and potassium due to sweat<sup>[20]</sup>. Mean intake for sodium for male was 1200mg and potassium was 1883mg.

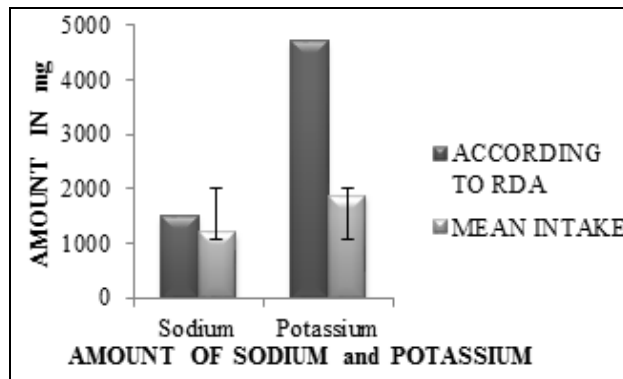


Fig 9: Sodium and potassium intake by the male labourers

According to RDA, requirement of sodium for female was 1500mg and mean intake was 1080mg. The potassium

requirement was 4700mg but due to lack of potassium in the diet their mean intake was only 2100mg.

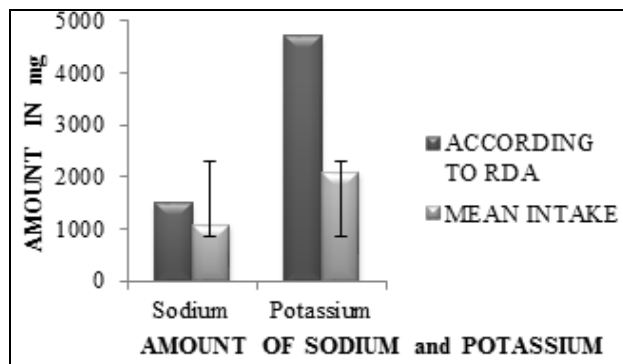


Fig 10: Sodium and potassium intake by the female labourers

Fibre and Vitamin A- Fibre rich food was consumed by the labourers. Requirement of fibre was 4000mg for male The mean intake for male was 6112.60mg. This is because their diet had enough amount of cereals and low cost vegetables which has enough fibre. On the other hand, Vitamin A is

extremely important. The requirement is 4800mg<sup>[20]</sup>. But the diet of the labourers lacked vitamin A. 1370mg was the mean intake for male. This is because fruits and vegetables which are rich in Vitamin A are costly.

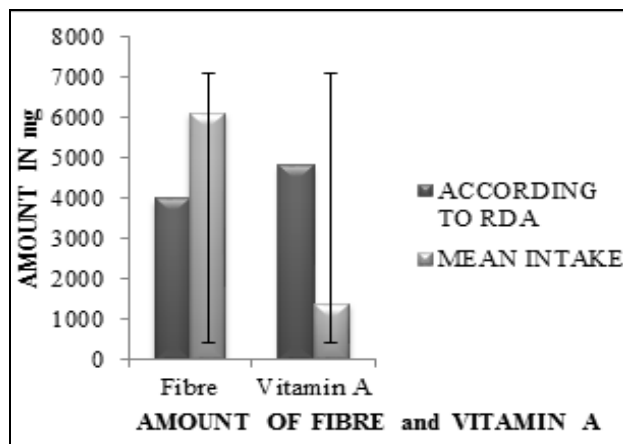


Fig 11: Fibre and vitamin intake by the male labourers

Requirement of fibre was 4000mg for female, same as male and the mean intake was 6000.61 mg for the same reasons as mentioned above.

Vitamin A requirement was 4800mg and 1350mg was the mean intake. It was lesser than male because the amount of food consumed by the females was less.

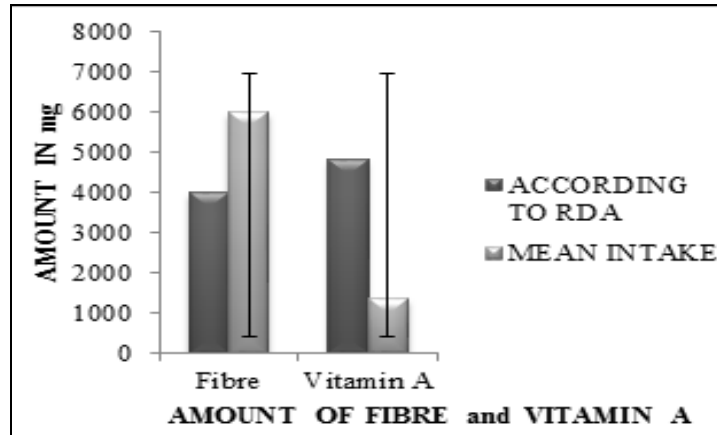


Fig 12: Fibre and vitamin intake by the female labourers

**Food habit**

Number of meals per day- Most of the labourers, be it male or

female had 3 major meals per day except the very poor ones. But they had lunch and dinner properly.

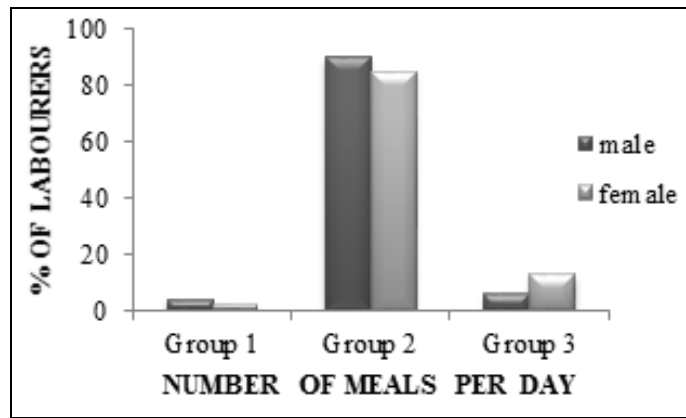


Fig 13: Meals taken per day. Group 1:2 major meals and snacks in between. Group 2:3 major meals and snacks in between. Group 3: 4 major meals and snacks in between.

**Health issues- Diseases & Deficiency disorders**

Working in very stringent and sometimes extreme conditions predisposes them to skin and respiratory problems. Due to poor dietary habits problems like anaemia, diabetes, and

scurvy occur usually and problems like night blindness and xerophthalmia in minor cases. Females suffer from anaemia and skin problems even more than males.

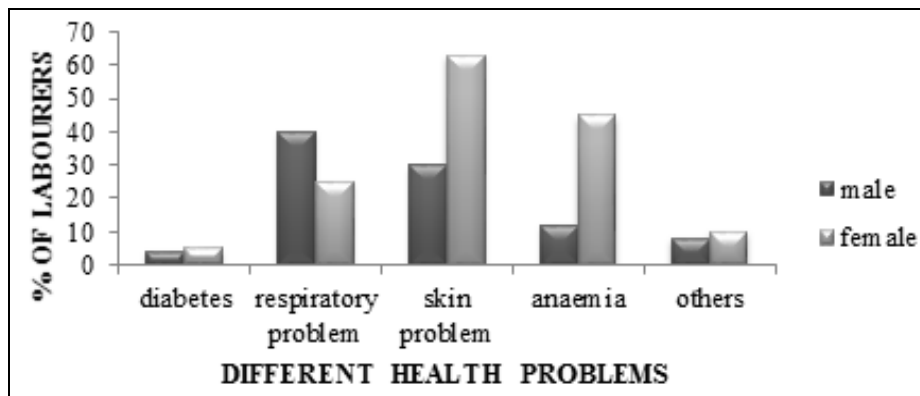


Fig 14: Different health diseases

Other factors influencing nutritional status

### **1. Income**

The average income of both males and females is around Rs 3000 to Rs. 5000 per month. The usual mode of payment is on a daily and no-work-no-pay basis.

### **2. Members to be fed**

There is no gender discrimination in being the sole earning member of the family. The average number of family members to be fed is around 3 to 4 as represented in Figure 15. Therefore the family income is not sufficient enough to provide nutritious food.

### **4. Conclusion**

Seeing all these it has been concluded that the lifestyle of the labourer workers is poor. Labour laws must be improved. Again the labourers are ignorant about what are the beneficial foods, what they should consume and how much. Their attention must be drawn and should be made aware about their daily nutritional requirement so that they can have a healthy life.

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