



HEALTH CRISIS OF SUGARCANE-CUTTERS MIGRATED FROM BEED TO KOLHAPUR DISTRICT: A CASE STUDY OF CHH. RAJARAM CO.OP. SUGAR FACTORY, KOLHAPUR (MAHARASHTRA)

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Introduction

In Ayurveda, the importance of health is clearly mentioned as 'health is wealth'. Now-a-days, it is the fundamental right of every citizen to seek basic amenities of health especially medical facility. Each and every person needs medical facilities in various ways. As we work harder and for longer periods, this need has become more intense. And to know the health status of sugarcane cutters it is necessary to know their Body Mass Index. In the present paper the B.M.I. of sugarcane-cutters and male female disparity in it is studied. The sugarcane-cutters migrating from Beed district to Kolhapur district for around six months of a year. So it is necessary to study what kind of medical facilities they are getting and what kind of food they containing at destination.

Objectives

The specific objectives of the present paper are as under:

1. To understand Body Mass Index of Sugarcane-cutters
2. To find out categories of weights at working place and male-female disparity in it.
3. To measure nutrient content of sugarcane-cutters common foods.

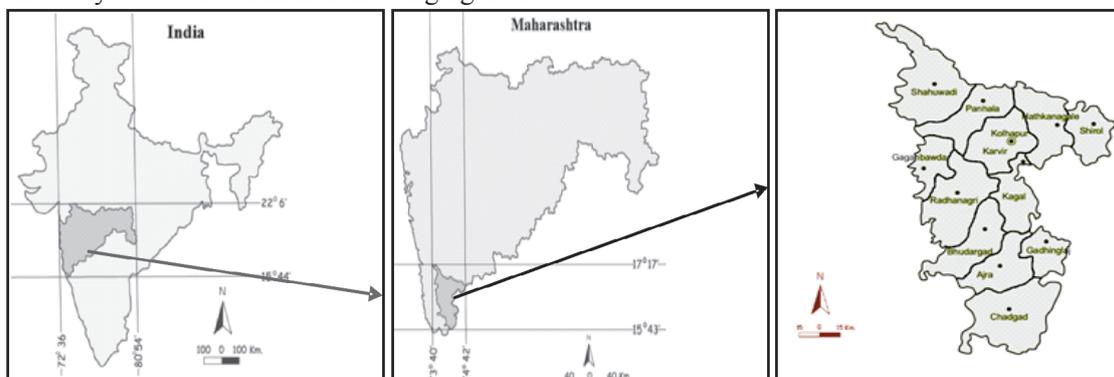
Data Base And Methodology:

The present study is based on both primary and secondary data. In order to achieve objectives of the study, the necessary primary data is obtained from the seasonal migrant sugarcane cutters working in C. R. Co-op. S. F., Kasaba Bawada of Kolhapur district. The required secondary data is gathered from the published Annual Reports of respective sugar factories and Agriculture Reports.

An interview schedule has been mainly used for collecting information from sugarcane-cutters huts. Health Centers in the catchment area of sugar factory is studied. Keeping in mind the seasonal nature of sugar industry and less availability of secondary data about migration in governmental offices, for this particular study, out of non-probability sampling method, 10% random sampling technique is used for selection of migrant sugarcane cutters of Beed district

Study Area:

The field work is carried out in the command areas of Chhatrapati Rajaram Co-op. Sugar Factory Ltd., Kasaba Bawada, Kolhapur. (C. R. Co-op. S. F., Kolhapur), is selected as sample factory for the research work. Beed is one of the droughts prone and backward districts of Maharashtra and located far away from Kolhapur and has sent large number of people as seasonal migrants. Location of the study area is shown in the following figure 1.



WHAT IS BMI?

BMI is calculated for the measurement of the relative per cent of muscle, bone and fat (amount of tissue mass) in a person. Body Mass Index (BMI) has been measured with the help of following formula:

$$\text{BMI} = \frac{\text{Weight in kg}}{\text{Height in m}^2}$$

Weight in kilograms is divided by height in meters squared and the result is used as an index of obesity. This index is used to find out whether a person is underweight, normal weight or overweight. Hence, it is divided into three categories by W.H.O. the BMI less than 18.5 is considered as underweight which shows malnutrition, eating disorder, risk of nutritional deficiency or any other health problem. BMI greater than 25 may indicate overweight and above 30 is known as obese.

Table 1
BMI Categories by W.H.O. Report

Sr. No.	Category	BMI range (kg/m ²)
1	Very severely underweight	less than 15
2	Severely underweight	from 15.0 to 16.0
3	Underweight	from 16.0 to 18.5
4	Normal (healthy weight)	from 18.5 to 25
5	Overweight	from 25 to 30
6	Obese Class I (Moderately obese)	from 30 to 35
7	Obese Class II (Severely obese)	from 35 to 40
8	Obese Class III (Very severely obese)	over 40

Source: W.H.O. Report

This paper seeks to investigate the levels of women and children health care practices. **BMI OF SUGARCANE-CUTTERS AND MALE-FEMALE DISPARITY**
There are criteria types to calculate BMI. In the present chapter The BMI categories given by W.H.O. report and by C. Gopalan have been combined. The following criteria are created to know the actual health status of sugarcane-cutters. The detailed information is given below.

- BMI at C. R. Co-op. S. F., Kolhapur
The following chart shows the BMI status of sugarcane-cutters at C. R. Co-op. S. F. Kolhapur.

Table 2
BMI of Sugarcane-cutters Working at
C. R. Co-op. S. F., Kolhapur

Sr. No.	Category	BMI range (kg/m ²)	Percentage
1	Very severely underweight	less than 15	14.44
2	Severely underweight	from 15.0 to 16.0	4.44
3	Underweight	from 16.0 to 18.5	18.33
4	Below normal weight	from 18.5 to 21.0	28.33
5	Normal (healthy weight)	from 21.0 to 25.0	27.22
6	Overweight	from 25 to 30	6.11
7	Obese Class I (Moderately obese)	from 30 to 35	1.11
8	Obese Class II (Severely obese)	from 35 to 40	0.00
9	Obese Class III (Very severely obese)	over 40	0.00

Source: Field work 2013-14

BIM of Sugarcane-cutters Working at
C. R. Co-op. S. F., Kolhapur 2013-14

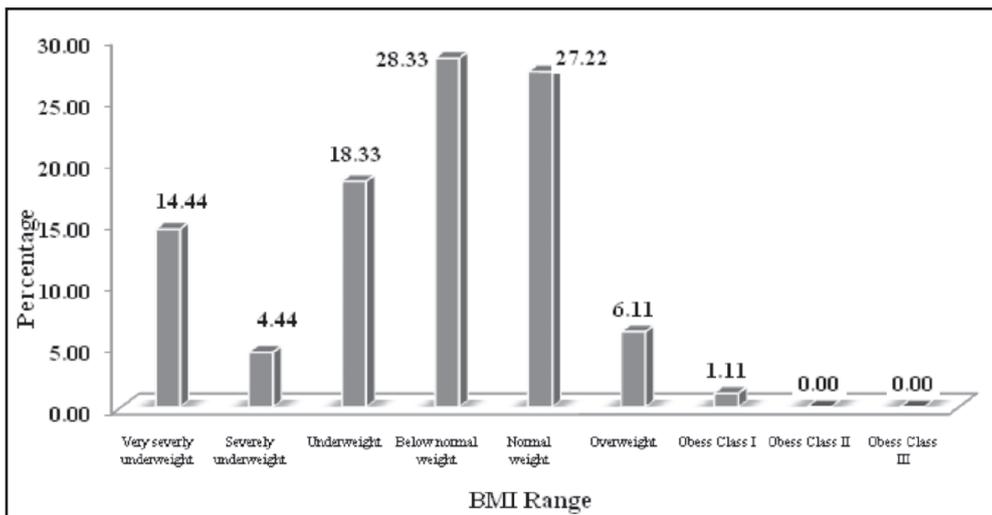


Fig. 2

The above table and chart shows that 14.44 per cent people have BMI below 15 which come in the very severely underweight category. These people, working at C. R. Co. op. S. F. Kolhapur, are in a very pathetic health condition. 4.44 per cent people have BMI in between 15.0 to 16.0 so they come under severely underweight category. 18.33 per cent people have BMI in between 16.0 to 18.5. It means 37.21 per cent sugarcane-cutters migrated at C. R. Co-op. S. F., Kolhapur are in dangerous health conditions. There is need to increase their nutritious level. 28.33 per cent people are below normal weight category, it also indicates poor health status of sugarcane-cutters. 27.22 per cent people come in normal weight category. Out of total sugarcane-cutters only 27.22 per cent people are healthy and remaining people face severe health problems. The overweight persons are 6.11 per cent, and very few i.e. 1.11 percent people come under the category of obese class I category.

Ø Male- Female Disparity in BMI at C. R. Co-op. S. F., Kolhapur

Table 3
Male –Female Disparity in Sugarcane-cutters Working at C. R. Co-op. S. F., Kolhapur

Sr. No.	Category	BMI range (kg/m ²)	Male (Percentage)	Female (Percentage)
1	Very severely underweight	less than 15	8.33	6.11
2	Severely underweight	from 15.0 to 16.0	1.67	2.78
3	Underweight	from 16.0 to 18.5	8.33	10.00
4	Below normal weight	from 18.5 to 21.0	16.67	11.67
5	Normal (healthy weight)	from 21.0 to 25.0	15.56	11.67
6	Overweight	from 25 to 30	4.44	1.67
7	Obese Class I (Moderately obese)	from 30 to 35	0.00	1.11
8	Obese Class II (Severely obese)	from 35 to 40	0.00	0.00
9	Obese Class III (Very severely obese)	over 40	0.00	0.00

Source: Field Survey 2013-14

In this chart this Body Mass Index is elaborated into male female category.

Male-Female BIM of Sugarcane-cutters Working at C. R. Co-op. S. F., Kolhapur 2013-14

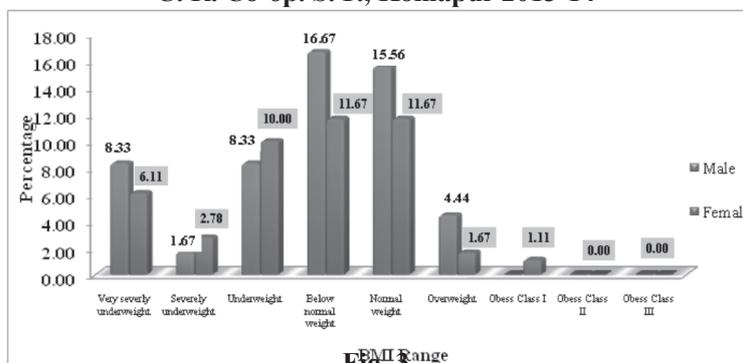


Fig. 3

This chart shows that sugarcane-cutters migrated at C. R. Co-op. S. F., Kolhapur has extremely poor BMI. It means most of the migrants have very low BMI. There is high percentage of women coming under the category of below 15 BMI. 6.11 per cent female are under the very severely underweight category and male population has 8.33 per cent. There is high percentage of female i.e. 2.78 per cent in 15.0 to 16.0 and 1.67 per cent male in severely underweight category of BMI. Again in 16.0 to 18.5 underweight criterion female are larger in number than male which is 10.00 and 8.33 respectively. In the next criterion which is considered as below normal weight male migrants have 16.67 per cent and female have 11.67 per cent. 15.56 per cent male and 11.67 per cent female are under the normal weight category which is from 21 to 25. Very few sugarcane-cutters at this factory including 4.44 per cent male and 1.67 per cent female are overweight. Only 1.11 per cent female are under obese class I and no one is in the next category of obese.

Foods Eaten By Sugarcane-cutters And Nutrient Content

Plants can manufacture the foods they need from simple chemicals derived from the soil, water and carbon dioxide of the air. Higher organisms on the other hand do not possess this capacity to manufacture food from simple chemicals and hence they depend on plants or other animals for obtaining the food they need. Procuring enough food for its survival is the main aim of the life's struggle in all the higher organisms. Satisfaction of hunger is usually the primary criteria for adequate food intake. But satisfaction of hunger is not a safe guide for the selection of proper foods. For sustaining healthy and active life, diets should be planned on sound nutritional principal. The vulnerable groups, among whom nutritional deficiencies occur more frequently and to more severe degree, require special attention and care. (Gopalan, C.)

The common food which is eaten by the people is the source of nutrients. Enough nourishment is very essential to active and healthy life. People needed sufficient food for the growth and development which is only possible by having wide range of nutrients. Nutrients are chemical substances presents in a daily food namely cereals, pulses, nuts, oilseeds, vegetables, fruits, milk and flesh food. These nutrients are energy, proteins, fat, carbohydrate, vitamins and minerals. Dietary habits of sugarcane-cutters are decided by the availability of foods locally.

Protein intake of sugarcane-cutters is determined by the quality of dietary protein consumption daily because for maintenance in adults, for development in infants and children, for fetal progress in pregnancy proteins are essential.

Fat is a concentrated source of energy and it supplies per unit weight more than twice the energy furnished by either protein or carbohydrate. Presence of fat for diet is important for the absorption of fat soluble vitamins like vitamin A and carotene present in the diet. (C. Gopalan) for essential fatty acids and improve palatability of diet fat is necessary in diet.

Carbohydrates are class of energy yielding substances which include starch, glucose, cane sugar, milk sugar etc. (C. Gopalan). Hard work, growth and rest for all this things energy are essential. Age, sex, height and weight and state of nutrition of the individual are some of the factors that affect energy.

Vitamins are organic substances present in small amounts in many foods. Fruits are generally good source of vitamin C. Various minerals too are present in our body. Bones and skeleton are made mainly by calcium, magnesium and phosphorus, and iron is a component of blood. Although this information indicates good dietary habits, sugarcane-cutters have very poor quality of diet and it is because of their socio, cultural and economic conditions.

The major millets and cereals consumed by sugarcane-cutters are jowar, bajara, rice, little content wheat, rarely consumption of maize is also found. These grains are the main source of energy in sugarcane-cutters diet because these millets and cereals are low-priced and are widely available energy sources. The nutritional content of food, discussed here, reduces with cooked food. Generally,

children and pregnant women require more nutrients than other age groups. The diets of sugarcane-cutters are deficient in several nutrients like energy, vitamin A, calcium, iron and they become victim of deficiency diseases. The protective foods like pulses, vegetables, milk, fruits, fats and oil are relatively low among their diet. Inadequate and faulty diet of sugarcane-cutters is a primary cause of nutritional deficiency. These deficiencies like protein, energy, vitamin A deficiency among children and iron deficiency among pregnant women will results poor intellectual growth of children and poor pregnancy outcome. So there is need to improve consumption of protective foods by sugarcane-cutters through economic upliftment and increase allied awareness among them. As well as educating mothers to feed their children daily with some vegetables and fruits. There is need to arrange health awareness program.

Various food items that are commonly consumed by people are given in the food group system. The above foods are placed into five groups depending upon nutrient content are as follow:

Table 4
Five Food Group Systems

Food Group	Main Nutrients
Cereals Grains and Products Rice, Wheat, Ragi, Bajara, Maize, Jowar, Barley, Riceflakes, Wheat flour	Energy, Protein, Invisible fat, Vitamin B ₁ , Vitamin B ₂ , Folic Acid, Iron, Fibre
Pulses and Legumes Bengalgram, Blackgram, Greengram, Redgram, Lentil (whole as well as dhals), Cowpea, Peas, Rajmah, Soyabeans, Beans, etc.	Energy, Protein, Invisible fat, Vitamin B ₁ , Vitamin B ₂ , Folic Acid, Calcium, Iron, Fibre
Milk and Meat Products Milk Milk, Curd, Skimmed milk, Cheese Meat Chicken, Liver, Fish, Egg, Meat	Protein, Fat, Vitamin B ₂ , Calcium Protein, Fat, Vitamin B ₂
Fruits and Vegetables Fruits Mango, Guava, Tomato ripe, Papaya, Orange, Sweet lime, Water melon A. Vegetables (Green Leafy) Amaranth, Spinach, Gogu, Drumsick leaves, Coriander leaves, Mustard leaves, Fenugreek leaves B. Other Vegetables Carrots, Brinjal, Ladies fingers, Capsicum, Beans, Onion, Drumstick, Cauliflower	Carotenoids, Vitamin C, Fibre Invisible fat, Carotenoids, Vitamin B ₂ , Folic Acid, Calcium, Iron, Fibre Carotenoids, Folic Acid, Calcium, Fibre
Fats and Sugars Fats Butter, Ghee, Hydrogenated oils, Cooking oils like Ground nut, Mustard, Coconut Sugars Sugar, Jaggery	Energy, Fat, Essential Fatty Acids Energy

Source: C. Gopalan

The common foods eaten by sugarcane-cutters are composited in the following table.

Table 5

Common Foods

All values are per 100 gms. of edible portion

Sr. No	Name of the food stuff	Moisture	Protein	Fat	Minerals	Crude Fibre	Carbo Hyrates	Energy	Calcium	Phosphorus	Iron
1	2	g.	g.	g.	g.	g.	g.	Kcal.	mg.	mg.	mg.
3	4	5	6	7	8	9	10	11	12		
CEREAL GRAINS AND PRODUCTS											
1	Bajara	12.4	11.6	5.0	2.3	1.2	67.5	36.1	42	296	8.0
2	Jowar	11.9	10.4	1.9	1.6	1.6	72.6	349	25	222	4.1
3	Rice	12.6	8.5	0.6	0.9	-	77.4	349	10	280	2.8
4	Wheat	12.2	12.1	1.7	2.7	1.9	69.4	341	48	355	4.9
PULSES AND LEGUMES											
5	Horse Gram	11.8	22.0	0.5	3.2	5.3	57.2	321	287	311	6.77
6	Green Gram	10.4	24.0	1.3	3.5	4.1	56.7	334	124	326	4.4
7	Soyabean	8.1	43.2	19.5	4.6	3.7	20.9	432	240	690	10.4
ROOTS AND TIBERS											
8	Onion	86.6	1.2	0.1	0.4	0.6	11.1	50	46.9	50	0.60
9	Potato	74.7	1.6	0.1	0.6	0.4	22.6	97	10	40	0.48
VEGETABLES											
10	Brinjal	92.7	1.4	0.3	0.3	1.3	4.0	24	18	47	0.38
11	Ladies Fingers	89.6	1.9	0.2	0.7	1.2	6.4	35	66	56	0.35
NUTS AND OIL SEEDS											
12	Groundnut	3.0	25.3	40.1	2.4	3.1	26.1	567	90	350	2.5
13	Sunflower Seeds	5.5	19.8	52.1	3.7	1.0	17.9	620	280	670	5.0
CONDIMENTS AND SPICES											
14	Ginger	80.9	2.3	0.9	1.2	2.4	12.3	67	20	60	3.5

Source: C. Gopalan, 2004

These are the food stuffs maximum sugarcane-cutters eat at the place of origin and the place of destination too. Maximum sugarcane-cutters are below poverty line. To enhance their standard of living there is need of public-private partnership mode. Government should also implement its decision of disbursing food for children, pregnant women and old sugarcane-cutters.

6.12 CONCLUSION:

The situations of housing, amenities and assets indicate prosperity of a person and standard of living. Bad housing conditions and facilities lead towards low standard of living and it creates various health problems. To know health problems faced by sugarcane-cutters BMI is calculated. It is a very good option to know the health condition of sugarcane-cutters, seasonal migrants. It shows that there is a need to provide medical facilities, basic amenities otherwise their standard of living will decline day by day. The awareness about health and cleanliness must be done with great practices. Nearly half of the sugarcane-cutters are in below normal weight and underweight category, it shows their very poor

standard of living. Their busy schedule due to very hard work keeps them away from awareness of nutritious food, clean drinking water and other health care practices.

First major thing done is BMI. By calculating BMI it is clear that maximum sugarcane-cutters are underweight. Few sugarcane-cutters have normal weight and hardly some sugarcane-cutters are obese. Hence, it is divided into three categories by W.H.O. the BMI less than 18.5 considered as underweight which shows malnutrition, eating disorder, risk of nutritional deficiency or any other health problem. BMI greater than 25 may indicate overweight and above 30 it is known as obese.

It is required to take a calorific, healthy food as early as possible in the morning. Many sugarcane-cutters have a habit to drink tea in the morning hours, which might refresh them for a while. But the worse part of it is it kills the hunger of sugarcane-cutters and keeps them away from food for much time. And sugarcane-cutters keep themselves in malnourishment. So it is always better to have breakfast instead of taking tea in the morning. It is not manageable thing for sugarcane-cutters to have a quality food in ideal timings. With an exhausting, painstaking, hectic timetable of their work it is like a wonder for sugarcane-cutters to direct enough sleep and balanced meals.

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