



## Health profile of Sugarcane harvester working in rural Maharashtra, India

### KEYWORDS

Sugarcane Harvester, social problem, focus group discussion, dagger injury

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**ABSTRACT** Context: Sugar, Sugarcane harvesters & sugarcane farmers are the burning issues in India. Many studies were conducted on Industrial workers; but nobody touched this most vulnerable, unorganized group.

*Aims:* To study the social and health status of sugarcane harvesters.

*Setting:* Sugarcane fields around Naigaon Grampanchayat.

*Design:* Cross-sectional study

*Methods & materials:* Total 122 sugarcane harvesters were interviewed & examined using pretested, semi structured questionnaire by Universal sampling technique. Social problems were discussed in Focus group discussion (FGD).

*Statistical Analysis:* percentage,  $\chi^2$

*Results:* Majority of Sugarcane harvesters 71(58.2%) were illiterate. Out of 122 sugarcane harvesters 28(23%) were alcoholic & 36(30%) were tobacco users.

Out of 65 school going children 32(49.23%) were not going to school during this season. Unemployment, lack of educational facility & domestic violence were major social problems in sugarcane harvesters which range from 34 - 36%.

Majority 75(62%) sugarcane harvesters had history of scorpion, dog & snake bites. Only 18(14%) were using government health facilities. Respiratory problems & injuries due to daggers were frequent. Out of 122, most of them had severe itching with erythematous rashes when they worked or sat under the acacia (babul Tree). FGD- Physical and verbal abuse were more common among the families of alcoholic husbands. Water & sanitation (bathroom & latrine) were also major issues.

*Conclusion:* Health wise sugarcane harvesters are still neglected.

### Introduction:

The sugarcane industry in India is an important contributor to the national economy through the production of multiple products for national and international consumption as well its contribution to recent regulatory requirements for bioethanol to be included as a constituent of petroleum-based fuels. The production and processing of sugarcane is a major source of employment in India.

In recent years, the world has looked at ethanol extracted from sugar cane, due to the need to seek alternative fuel sources, considering the uncertainty of future oil availability and issues involved in global warming. Thus, India has worked to improve the production techniques of ethanol, used as fuel for vehicles and machines. These facts turn India into a potential supplier of these products and put the country into an economically favorable position for multinational investments, which would result in economic development.

What alcohol production is concerned, although it offers economic development to India, the world needs to be informed about the nature of sugar cane harvesters work: poor people who are exposed to different health risk situations, which have made them victims of occupational diseases.<sup>1</sup>

In India, sugarcane belt is spread in Maharashtra, Karnataka, Uttar Pradesh, Andhra Pradesh, Madhya Pradesh & many more states. Sugar, Sugarcane harvesters & sugarcane farm-

ers are the burning issues in India. Many studies were conducted on Industrial workers; but nobody touched this most vulnerable, unorganized group. Most of the workers are poor, live in houses that often lack basic sanitation and tap water, with a total lack of hygiene. They receive merely curative medical care through the public health system. Addiction, domestic violence, children dropping out from school, unemployment, living condition & health are the major issues.

A sugarcane farmer is an owner of a sugarcane field. Plantation of sugarcane is done by farmers from October to March, sometime in June -July. Then sugarcane farmer registers the date of plantation in sugarcane office. After one year of the registered date sugarcane factory sends the sugarcane harvesters for cutting of sugarcane. Sugarcane harvester is a person who is engaged in cutting, tie up & loading of sugarcane in vehicle. Mukadam (contractor) is person who recruits 3-5 teams of sugarcane harvester each consisting of 12-25 labours. Mukadam is a bridge between factory & sugarcane harvester. He is engaged in financial, managerial & in provision of basic requirements to teams.

This study was carried out with following objectives 1] To identify various social problems and 2] health status of sugarcane harvester.

### Subjects & methods

*Design:* A cross-sectional study was conducted. Purpose of

the study was explained to the Sugarcane officer, Mukadam & some workers. Workers problems were discussed with some workers & Mukadam. Their basic information was collected from the three Naigaon sugarcane factory offices. Workers were contacted at their work place/ home, according to their suitable timing. Workers were taken into confidence & explained about the objective, importance & nature of study which help in getting authentic information. A pretested, semi structured questionnaire was used. Systemic examination of workers was done. Social problems were discussed in a group of females by Focus group discussion

Study area: sugarcane fields around Naigaon Grampanchayat at administrative area, Taluka -Kallamb, Dist- Osmanabad, Maharashtra, India.

Study period: January 2010 to April 2010

Study population: all sugarcane harvesters working in Naigaon sugarcane field area, who has given written informed consent.

Sample size: 122 Sugarcane harvesters were interviewed & examined.

Sampling technique: Universal sampling.

Analysis: EXCEL, Epi info

**Results:**

In the present study, total 122sugarcane harvesters were participated. Out of 122 Sugarcane harvesters 68(55.7%) were female & 54(44.2%) were male. Majority of Sugarcane harvesters 74(60.6%) were in 15- 30 year age group. Majority of sugarcane harvesters 111(91.0%) were Hindu followed by 06(4.9%) were Muslims & 5(4.1 %) were Buddhist.

Majority of Sugarcane harvesters 50(41%) came from Beed District, followed by 30(24.6%) from Osmanabad, Nanded, Latur & Parbhani District of Maharashtra.

Out of 122 Sugarcane harvesters maximum 71(58.2%) were illiterate, 32(26.2%) were primary educated, 13(10.70%) were secondary educated & only 06(4.9%) were higher secondary educated.

As per Modified B.G. Prasad Socioeconomic classification, majority of Sugarcane harvesters 92(75.4%) were in class V & 30(24.6%) were in class IV. Out of 68 families, 30(44%) families were nuclear & 38(56%) were joint.

Out of 122 sugarcane harvesters 28(23%) were alcoholic & 36(30%) were tobacco users. Out of 54 male 26(48%) were alcoholic & 33(61%) were tobacco users. 7% females were also addicted. Fourty four 44(36%) Sugarcane harvesters took loans; of which maximum 27(22.5%) were from money lenders (Saukar).

Out of total 65 school going children, 32(49.23%) were not going in school during this season. Out of total 32 non schools going children 73% from illiterate family were not going in school as compare to 43% children from literate family in this season. This difference is statistically significant. ( $\chi^2 = 12.696$ ,  $df = 1$ ,  $p < 0.0003$ ). 75% school going children from nuclear families were not going in school as compared to 49% from joint families in this season. This difference is statistically significant. ( $\chi^2 = 7.851$ ,  $df = 1$ ,  $P = 0.005$ ).

**Table 1: Social problems in sugarcane Harvesters (n=122)**

Social problems	Frequency	Percent
Unemployment	44	36.06
Domestic violence	42	34.42
Divorce	1	0.81

Death in family	10	8.19
Lack of educational facility	44	36.06
Poverty	22	18.03
Others*	20	16.39
No	18	14.75

Total does not add to 100% due to multiple responses

\* Others includes housing, social security, health services & nutrition, leisure & culture

Unemployment, lack of educational facilities & domestic violence were the major social problems which range from 34 - 36%.

Out of 122 sugarcane harvesters 22(18%) had some saving or insurance. Out of 122 sugarcane harvesters 54(44.3%) were working since 1-5 years, 32 were working for 6-10 years, 32 were working for 11- 20 years & 4 were working more than 20 years. Seventy two (59%) sugarcane harvesters didn't have potable water to drink. They were obtaining water from ponds & old wells.

Out of 122 sugarcane harvesters 17(13.9%) faced verbal or physical abuse in family during work. Out of 122 sugarcane harvesters 14(11.47%) did think about suicide.

**Table 2: Association between gender & history of injury due to sugar cane dagger or stump of cane**

History of injury due to sugar cane dagger or stump of cane			
Gender	Yes	No	TOTAL
<b>Female</b>	37 (54.4%)	31 (45.6%)	68 100%
<b>Male</b>	46 (85.2%)	8 (14.8%)	54 100%
<b>TOTAL</b>	83 (68%)	39 (32%)	122 100%

$\chi^2 = 13.106$ ,  $df = 1$ ,  $p = 0.0002$

Out of 122 Sugarcane harvester 83(68%) had an injury at least once due to a sugarcane dagger or a stump of cane. Sugarcane harvesters get injured repeatedly in the field.

**Table 3: History of (H/O) bite in sugarcane harvester (n=122)**

H/o bite	Frequency	Percent
Snake	04	3.27
Scorpion	60	49.18
Dog	18	14.75
Other#	06	4.9
No	47	38.52

Total does not add to 100% due to multiple responses

# Others includes Fox, jackal, pigs, Rodent etc.

Out of 122 Sugarcane Harvesters only 18(14%) were using government health facilities. Out of 122 sugarcane harvesters maximum 50(41%) were farming, 42(34.4%) were working as laborers, 18(14.8%) were housewives & 4 were taking education after sugarcane cutting season.

Out of 122 Sugarcane harvesters 98(80%) had complained severe itching with erythematous rashes when they worked or sat under the acacia or red catechu' or 'lal khair'(Babul Tree).

Out of 122 Sugarcane harvesters 6(4.91%) had asthma & 1 had Pulmonary Tuberculosis. Nobody had Hypertension

or DM. Majority of sugarcane harvesters had skin diseases 59(48.3%) & few had weakness 6(5%), body ache and Pelvic inflammatory disease in females. Out of 122 Sugarcane harvesters 24(19.67%) had breathlessness, cough & tiredness.

On RS (respiratory system) examination of 122 Sugarcane harvesters 3 had wheeze, 4 had crepitation & 3 had air entry decreased bilaterally.

#### Focus group Discussion in female Sugarcane Harvester

- 1) Education – Children were not having schooling facilities. They do not want to bring their next generation in this field but they are not aware about the facilities provided by the Government. Nuclear family has a negative impact on the education of children.
- 2) Alcoholism – Husbands were chronic alcoholics, which influence the family environment. Advance money was spent in alcohol & tobacco which affects the family budget & education of children.
- 3) Domestic violence – Physical & verbal abuse from husband was common after drinking. They also face verbal abuse from villagers.
- 4) Their residence was in hutments at the periphery of the village. Water and sanitation (bathroom & latrine) was also a major predicament for the family.
- 5) They have to face adverse climate i.e. cold, rain.
- 6) They have a fear of increase in unemployment due to introduction of sugarcane harvesting machines.
- 7) Majority of sugarcane harvesters were of Namahani caste and one of their recreational activity is celebrating festivals like Holi very enthusiastically. During this festival, there is a custom of begging and the wife beating the husband playfully. Then they dance around the fire with their local folk song.

#### Discussion:

In the present study, majority of sugarcane harvesters were in the 15 to 30 year age group & Hindu. More than 50% sugarcane harvesters were illiterate. Similar findings were also reported by other study in India.<sup>2</sup> Majority of sugarcane harvesters were from Beed District because this district was more droughts prone. Majority of the sugarcane harvesters were taking loans from money lenders which was an easy & quick way of obtaining a loan. Since they charge higher rates of interest sugarcane harvesters were burdened with more debt; which further lead to suicide in sugarcane harvesters.

Fifty percent of the schools going children were not going to school which was the darker side of the sarva siksha abhiyaan. These families didn't know about Sakhar Shala (Sugar schools) & those they could take admission at any time in any school. Educational awareness & facilities have to be provided for these children.

Unemployment & domestic violence were the major social problems in these families. Domestic violence was more in alcoholic addicted families. Vocational guidance in off season is important. However it is found that alcohol consumption is less & tobacco consumption is more in Indian sugarcane harvesters as compared to the study conducted in Sao Paulo, Brazil.<sup>3</sup> Deaddiction programme should be considered a priority.

Sixty eight percent Sugarcane harvesters had an injury due to a sugarcane dagger or a stump of cane. Protective measures were less used by them which lead to repeated injuries in the field. Out of 54 male sugarcane harvesters, 46(85.2%) had history of injury due to a sugar cane dagger or a stump of cane as compared to 37(54.4%) of 68 females. This may be due to the fact that females were more engaged in collection, tie up & loading of sugarcane in vehicles. Injuries were double in Indian workers as compared to the study conducted in Brazil<sup>1</sup>. This may be due to less use of protective measures.

Morbidities were more common in sugarcane harvesters, but they were not getting health facilities from the government or sugar factories. Itching under Babul tree was the main complaint in majority of sugarcane harvesters which is to be investigated further. Respiratory problems, weakness, body ache was less in our study as compare to study conducted in Brazil but skin diseases were more common in our study. In Brazil, sugarcane fields were burnt & then cut in summer; but in India, sugarcane fields are not burnt & cutting is done in winter season. This may alter the morbidity patterns in sugarcane harvesters<sup>1</sup>.

#### Conclusions and Recommendations

- 1) Illiteracy, alcohol & tobacco consumption, indebtedness, unemployment, domestic violence, poverty etc. were the major problems in Sugar cane harvesters.
- 2) School dropout is a very grave problem. Special efforts are required from Educational department, sugar factories & NGOs for the education of children.
- 3) Females were struggling for better quality of life in family. Women empowerment can be achieved by female education, formation of Mahila Mandal (womans group), Mahila microfinance and self help group.
- 4) Respiratory problems, fungal infections & Injuries were the major health problems. Provision of adequate and continuous protective measures and a first aid box to each team by Sugar factories. Then they should be educated & motivated about the use of basic protective measures. Establishment of an effective occupational health programme which includes immunization, post-exposure prophylactic treatment, and medical surveillance is essential.
- 5) Health checkup and laboratory investigation should be done periodically & immediate corrective measures should be taken to protect the health of sugarcane harvesters at risk.
- 6) Social security measures such as life & health insurance should be mandatory & legally from sugar factory & Government.
- 7) Alcohol consumption is still affecting the social environment of the family. Counseling of addicted sugarcane harvesters must be done. Causes of addiction should be studied. Chronic alcoholics should be rehabilitated at personal level, family level & community level.
- 8) Formation of quality circles: Quality circles are the group of 8-10 employees who work together to solve their own problems using their own brain power.

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