



## TOBACCO CONSUMPTION AND ASSOCIATED MORBIDITIES-A COMMUNITY BASED CROSS SECTIONAL STUDY AMONG RURAL AGRICULTURAL WORKERS IN NORTH KARNATAKA

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### ABSTRACT

Background and aims: 72% of Indian population lives in rural areas, where their main occupation is agriculture. In developing countries like India, tobacco consumption is mainly done in two forms: smoked tobacco products and smokeless tobacco. In India, tobacco consumption is responsible for half of all the cancers in men and a quarter of all cancers in women. Very few community based studies have been conducted to assess the prevalence of the tobacco use and their associated morbidities among agricultural workers. Methods and Material: This cross-sectional study was done from January 2009 to December 2009 among 400 agricultural workers of age 16 to 60 years residing in a sub-centre area of the PHC administrated by Medical College in South India, using predesigned and pretested questionnaire. Statistical analysis was done by using percentages and chi square test. Results: Among the study participants 55.75% were men and 44.25% were women, with male to female ratio of 1.25:1. Most of the agricultural workers (89.5%) were Hindus and 47% were illiterates; of the 400 study participants, 295 (73.75%) belonged to Class V socio-economic status. 55.75% had the habit of consuming smokeless tobacco. Among them 98(38.7%) had the habit of chewing gutkha, 83(32.8%) chewed pan masala and remaining 28.4% betel quid. Common reasons for using tobacco were to experiment in 43.4%, 36.3% because of influence of family members and 20.1% because of the influence of friends. Majority (62%) of agricultural workers suffered from morbidities associated with oral cavity, followed by morbidities associated with musculoskeletal system (21.7%) and respiratory system (19%). Increasing age, gender and poor educational status were significantly associated with morbidities of the oral cavity. Conclusion: There is widespread belief that smokeless tobacco use is less harmful than smoking. There needs to have an end of this belief. Which can be achieved by Strengthening the information, education and communication (IEC) activities and special health check-up camps with emphasis on improvement of health.

**KEYWORDS:** Tobacco consumption, Morbidity pattern, Agricultural workers;



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## INTRODUCTION

India lives in its 600,000 villages. Nearly 72% of Indian community live rural areas area, where their main occupation is agriculture. Indian agriculture accounts for 25% of total gross domestic product (GDP) in which 75% of the country's population depending on.<sup>1</sup> A farmer is a person, engaged in agriculture, who raises living organisms for food or raw materials, generally including livestock husbandry and growing crops such as produce and grain. A farmer might own the farmed land or might work as a laborer on land owned by others; but in advanced economies, a farmer is usually a farm owner, while employees of the farm are agricultural workers, farm workers, farm hands . etc.<sup>2</sup> In developing countries like India, tobacco consumption is mainly done in two forms: smoked tobacco products and smokeless tobacco. Most commonly used smokeless tobacco products include - tobacco pan masala, tobacco with lime, tobacco with pan and betel quid.<sup>3</sup> Easy affordability, lesser cost and misconceptions regarding its useful health effects are important contributory factors for increased smokeless tobacco consumption.<sup>4</sup> In India, tobacco consumption is responsible for half of all the cancers in men and a quarter of all cancers in women. <sup>5</sup>Very few community based studies have been conducted to assess the prevalence of the tobacco use and their associated morbidities among agricultural workers. Therefore, the present study was conducted to know the Tobacco Consumption and Associated Morbidities among agricultural workers of North Karnataka.

## MATERIALS AND METHODS

### *Study design, period and area*

This community based cross-sectional study was conducted from January 2009 to December 2009 in the rural field practice area of Primary Health Center (PHC) attached to Medical College in South India. The PHC has five sub-centers catering 18 villages having a total population of 31,510. One sub-centre was selected among the five sub-centers the sample random sampling technique.

### *Sample size and technique*

Since no previous studies had been recorded on the prevalence of tobacco consumption among agricultural workers and its associated morbidity in this area, the prevalence was considered to be 50% and the sample size was calculated as 400. All agricultural workers residing in six villages coming under selected sub-centers were listed. By four digit random number table method, 400 participants were selected.

### *Selection criteria*

Agricultural workers residing in the study area for at least one year preceding the date of survey aged between 16 years to 60 years were included in the study. Recent migrants, pregnant and lactating women working as agricultural workers were excluded from the study.

### *Procedure*

The study was approved from Institutional Ethics Committee of the Medical College. The study participants were interviewed in their households/fields. Based on the selection criteria, the study participants were selected and written informed consent was obtained from all the participants. The data was collected using predesigned and pretested proforma. Data regarding demographic variable like place of residence, age, sex, education status, marital status, socio-economic status and type of family were recorded. The personal history was taken from diet, sleep pattern, appetite and personal habits.

### *Study variables*

A detailed history regarding habits, type and amount of tobacco consumption and common reasons for using tobacco were taken. A thorough general physical examination and systemic examination was conducted by the investigator to know the morbidities. Two more subsequent visits were made to collect data

from those who were absent during the first visit.

**Statistical analysis**

The data was tabulated using MS Excel sheet and analysis was done using percentages, rates and ratios. Chi square test was used to find the association between attributes.

**RESULTS**

The social demographic characteristics of study population showed that majority of study subjects were in the age group of 30 to 45 years (34.25%) followed by 45 to 60 years (39%). Males (55.75%) were more than females

(44.25%). The majority of them were Hindus (89.5%) followed by Muslims (10.5%). According to family type 60.25% belonged to nuclear family and 35.50% belonged to joint family. Most of the study subjects were either illiterate's (47%) or had education up to primary level (38%). The majority of them were in class V (73.75%) followed by Class IV (20.75%) socio-economic status. In the present study among 400 study subjects interviewed 223(55.75%) had the habit of chewing gutkha/tobacco and 30(7.50%) participants used to smoke along with chewing tobacco whereas 15% had the habit of consuming alcohol and (Table 1)

**Table 1**  
**Distribution of study population according to habits**

| Habits            | Study population |       |
|-------------------|------------------|-------|
|                   | No.              | %     |
| Gutkha or Tobacco | 223              | 55.75 |
| Alcohol           | 60               | 15.00 |
| Smoking           | 30               | 7.50  |

Among the study population 253(55.75%) had the habit of consuming smokeless tobacco. Among them 98(38.7%) had the habit of chewing gutkha, 83(32.8%) chewed pan masala and remaining 28.4% betel quid. (Table 2)

**Table 2**  
**Distribution of study population according to habits of smokeless tobacco consumption (n=253)**

| Habits     | Study population |      |
|------------|------------------|------|
|            | No.              | %    |
| Gutkha     | 98               | 38.7 |
| Pan masala | 83               | 32.8 |
| Betel quid | 72               | 28.4 |

Among the 253 study participants the common reasons for using tobacco were to experiment in 43.4%, 36.3% because of the influence of family members and 20.1% because of influence of friends. Initially they started tobacco use irregularly and finally become habituated to tobacco use. The duration of experimental ofe to habitual use of tobacco ranges from two months to three years. (Table 3)

**Table 3**  
**Distribution of study population according to cause for tobacco consumption(n=253)**

| Cause for tobacco consumption | Study population |      |
|-------------------------------|------------------|------|
|                               | No.              | %    |
| Experiment                    | 110              | 43.4 |
| Influence of family members   | 92               | 36.3 |
| Influence of friends          | 51               | 20.1 |

In the present study among the study participants majority (62%) suffered from morbidity associated with oral cavity like dental caries (25.50%), dental stain (21.75%), dental calculus (11.50%) and oral submucous fibrosis (3.75%) ( Table 4).

**Table 4**  
**Provisional diagnosis among the study population (n=400)**

| Provisional diagnosis | Study population        |           |
|-----------------------|-------------------------|-----------|
|                       | No.                     | %         |
| <b>Oral cavity</b>    | Dental caries           | 102 25.50 |
|                       | Dental stains           | 87 21.75  |
|                       | Dental calculus         | 46 11.50  |
|                       | Oral submucous fibrosis | 15 3.75   |

In the present study significant association was found between morbidities of oral cavity with increasing age and gender. (Table 5 & 6)

**Table 5**  
**Association of gender with morbidities of oral cavity**

| Provisional diagnosis | Male (n=223)    |                 | Female (n=177) |            | Total (n=400) |   |
|-----------------------|-----------------|-----------------|----------------|------------|---------------|---|
|                       | No.             | %               | No.            | %          | No.           | % |
| <b>Oral cavity</b>    | Dental caries   | 62 27.8         | 40 22.6        | 102 25.50  |               |   |
|                       | Dental stain    | 60 26.9         | 27 15.3        | 87 21.75   |               |   |
|                       | Dental calculus | 28 12.6         | 18 10.2        | 46 11.50   |               |   |
|                       | OSMF            | 9 4             | 6 3.4          | 15 3.75    |               |   |
|                       |                 | $\chi^2=18.214$ | $df=4$         | $p= 0.001$ |               |   |

**Table 6**  
**Association of age with morbidity pattern**

| System             | Morbidity       | Age groups (In Years) |         |            |           |         |   | Total |   |
|--------------------|-----------------|-----------------------|---------|------------|-----------|---------|---|-------|---|
|                    |                 | 15 – 30               |         | 30 – 45    |           | 45 – 60 |   | No    | % |
|                    |                 | No                    | %       | No         | %         | No      | % |       |   |
| <b>Oral cavity</b> | Dental caries   | 13 14.9               | 51 32.5 | 38 24.4    | 102 25.50 |         |   |       |   |
|                    | Dental stain    | 10 11.5               | 27 17.2 | 50 32.1    | 87 21.75  |         |   |       |   |
|                    | Dental calculus | 5 5.7                 | 22 14.0 | 19 12.2    | 46 11.50  |         |   |       |   |
|                    | OSMF            | 3 3.4                 | 4 2.5   | 8 5.1      | 15 3.75   |         |   |       |   |
|                    |                 | $\chi^2=47.614$       | $df=8$  | $p= 0.000$ |           |         |   |       |   |

## DISCUSSION

The aim of this study was to determine the prevalence and type of tobacco use among agricultural workers in north Karnataka and to identify the factors that influenced them to initiate tobacco use. In our study prevalence of chewing gutkha/tobacco was 55.75% whereas 7.50% participants used to smoke. Most of them used non smoked variety. In a prevalence survey of tobacco use in Karnataka and Uttar Pradesh, the overall prevalence of 'ever use' of any kind of tobacco was 29.6% in Karnataka and 34.6% in Uttar Pradesh.<sup>6</sup> According to the National Sample Survey Organization, the prevalence rate of tobacco use in the country (rural + urban) is 35.5%.<sup>7</sup> According to a study conducted this may be true because the non-smoked variety is cheaper and more easily available, and considered by some to be less harmful.<sup>8</sup> In another study it was mentioned that prevalence of tobacco consumption among farmers was tobacco 41%.<sup>9</sup> In our study among the study participants majority (62%) suffered from morbidity associated with oral cavity like

dental caries (25.50%), dental stain (21.75%), dental calculus (11.50%) and oral submucous fibrosis (3.75%). In a study done on rural people in Maharashtra where most of the study participants were farmers (41.10%) shown that Tobacco hyperkeratosis was the most common oral mucosal lesion in both males (42.20%) and females (11.07%) and the prevalence of OSMF was 15.30%.<sup>9</sup> In the present study, common reasons for using tobacco among study participants were to experiment in 43.4%, 36.3% because of influence of family members and 20.1% because of influence of friends. Studies have shown that parental substance use, parental communication with their children, parental concern regarding the consequences of drug or substance use by older siblings have an influence on substance use in adolescents and youth.<sup>10,11,12</sup> Substance use may also be influenced by cultural practices and religious faith, which are unique to India.<sup>13</sup>

## CONCLUSION

There is widespread belief that smokeless tobacco use is less harmful than smoking. There needs to have an end of this belief. This may be achieved by Strengthening the information, education and communication (IEC) activities and special health check-up camps with emphasis on improvement of health. Anti-tobacco awareness programs targeting agricultural workers need to be scaled

up. The prevention activity needs to focus on behavior change through group or personal approach rather than just giving information through mass approach. Prevention activities also need more focus on smokeless form of tobacco use and bidi smoking. Capacity building of local NGOs can be done to support the tobacco control programs.

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