

## **A cross sectional study on health profile of female beedi rollers in a rural area in Mangalore**

Dr. Ria Ann Thomas<sup>1</sup>, Dr. Deepu Chengappa Cheriamane<sup>2</sup>, Dr. Irfan<sup>3</sup>

<sup>1</sup>(Post graduate student, Department of Respiratory Medicine, Yenepoya University, India)

<sup>2</sup>Assistant Professor, Department of Respiratory Medicine, Yenepoya University, India)

<sup>3</sup>(Assistant Professor, Department of Respiratory Medicine, Yenepoya University, India)

---

### **Abstract:**

**Aim:** To study the socio demographic profile, the working condition and the health hazards of the female beedi workers.

**Method:** A cross sectional study was done among female beedi rollers in a rural area of Mangalore. House visit survey was done and all beedi rollers currently working of the age group above 18 years were included in the study. A pre designed pre tested questionnaire was used to collect the socio demographic profile, work pattern and the health problems after getting informed consent. Data was analyzed using statistical package SPSS version 20.

**Result:** Among the study group of 100 subjects, the mean age was 36 years. Most of them were Muslim females with a poor socio economic status. 57% were illiterate. Mean years of service was 17 years. Out of 100 subjects, most common health hazard was musculoskeletal symptoms (59%) followed by respiratory symptoms (49%), neurological symptoms (46%), gastrointestinal symptoms (42%) and eye problems (14%)

**Conclusion:** In poor socioeconomic group of people, beedi rolling plays an important role in their household economy. Musculoskeletal symptoms were the most common health hazard seen among beedi rollers. Since beedi rolling is not an organised sector and due to lack of available policies for home based beedi rolling, steps have to be taken by policy makers to include home based beedi rolling into the policy.

**Keywords:** female, tobacco, beedi workers, occupational diseases

---

### **I. Introduction**

The beedi industry has an important place in rural and urban area in terms of its capacity to offer potential employment opportunities to a large number of people. It is estimated that around one million workers mostly women and children are employed in Beedi making<sup>1</sup>. Most of the beedi making is carried out by the contractual, home-based, daily base system. In this women and children are involved quite easily<sup>2</sup>. Beedi is made by two main raw materials, tendu leaves (beedi wrapper) and tobacco flakes. Beedi is also known as poor man's cigarette<sup>2</sup>.

A single woman on an average rolls 500-1000 beedies per day, using an average of 500 grams of tobacco flake. A beedi worker in the process of rolling may inhale tobacco dust and other harmful components<sup>3</sup>. Women spend hours sitting, rolling beedies, surrounded by this harmful tobacco dust<sup>4</sup>. Beedi rolling procedure involves curing of the tendu leaves, drying them for 3 to 6 days and using them to wrap tobacco flakes<sup>5</sup>. Most of them live in one small room where they do the beedi rolling along with cooking, sleeping and other daily activities<sup>6</sup>. The health hazards of tobacco exposure through smoking have been well documented and exposure to tobacco smoke, active and passive, has a significant impact on women's health. Beedi rolling causes serious health hazards<sup>7</sup>. In view of the high content of nicotine and other harmful chemicals in beedi tobacco (compared with cigarette tobacco), these workers are at extreme risk of developing systemic illness<sup>1</sup>. Hence the study was carried out to understand the socio demographic profile, working condition and health hazards of female beedi rollers residing in a rural area located near Yenepoya Medical College, Mangalore.

### **II. Method**

This cross sectional study was conducted in the rural field practice area of Yenepoya medical college, Deralakatte from June 2015 to August 2015 among females who are beedi rollers from at least for past 6 months.

The present study was carried out after obtaining the Ethical committee clearance of the Medical college.

Written and informed consent was taken from all the participants. A sample of 100 female beedi rollers who are currently working from at least 6 months were included in the study. Those who left the job or females below 18 years were not included in the study.

In the defined study area, house to house survey was done. Female beedi rollers who had come under the inclusion criteria were taken. An assurance to the subject regarding the confidentiality of subjects data was assured. The pre designed, pre tested questionnaire was administered for collecting the demographic profile, working condition and the health hazards of the subjects. After oral interview detailed clinical examination was performed.

**Statistical analysis:** Statistical analysis was done using SPSS. V20. Results were expressed in number and percentages. Descriptive Statistics and ChiSquare Test were employed to analyse the data, statistical significance was fixed at  $p < 0.05$ .

### III. Results

Among 100 beedi rollers, 96% of subjects were from the Muslim religion with 32% fallen within the age group ranging from 25 – 54 years. Only females were involved in the study. Most of them were married (88%). Around 57% were illiterate. Among literate, 14%, 20% and 9% studied till primary, middle and secondary schooling respectively. According to modified Kuppuswami classification, 24%, 64% and 12% belong to lower middle, upper lower and lower class respectively. Over crowding was seen in almost all the houses.

Among 100 female patients, women of age ranging from 25-54 years were mostly involved in beedi rolling. Most of the women started this beedi rolling because of their poor socioeconomic status and also as their family was involved in this occupation. Around 29% of the study subjects were in this occupation for >25 years, 10%, 13%, 17%, 20% and 11% for 21-25 years, 16-20 years, 11-15 years, 5-10 years and <5 years respectively. Most of them works for an average of 5 days per week and 5 hours per day. Beedi rolling work is done at home along with cooking, feeding children and other daily activities. There was no separate place for beedi rolling and it was done at areas where other activities were carried out. Women sit for prolonged hours for beedi rolling.

Number of beedies made were 300- 1000 per day. Around 70% of subjects make 300-500 beedies per day. Most of subjects work on weekly basis. They get paid on weekly basis.

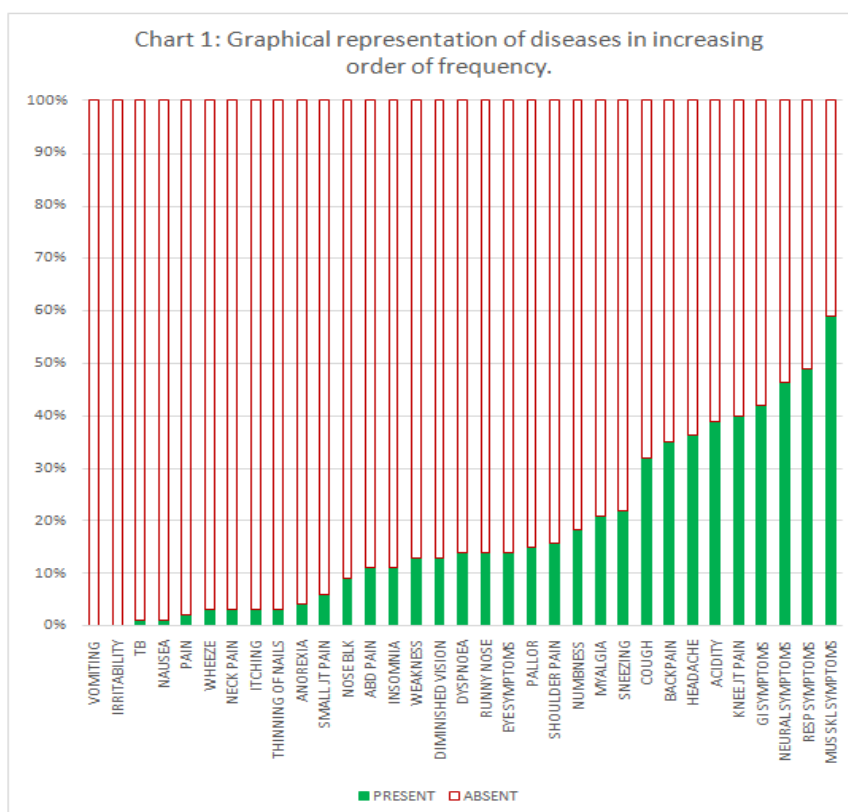
Table1: Demographic profile and working pattern of beedi rollers

		Count	Column N %
AGE	18-24	12	12.0%
	25-34	22	22.0%
	35-44	32	32.0%
	45-54	26	26.0%
	>=55	8	8.0%
GENDER	FEMALE	100	100.0%
	MALE	0	0.0%
OCCUPATION	BEEDI ROLLER	100	100.0%
RELIGION	HINDU	96	96.0%
	MUSLIM	3	3.0%
	CHRISTIAN	1	1.0%
MARITAL STATUS	MARRIED	88	88.0%
	NOT MARRIED	8	8.0%
	DIVORCEE	1	1.0%
	WIDOWED	3	3.0%
EDUCATIONAL STATUS	ILLITERATE	57	57.0%
	PRIMARY	14	14.0%
	MIDDLE	20	20.0%
	SECONDARY	9	9.0%
	PUC	0	0.0%
SOCIO ECONOMIC STATUS	UPPER CLASS	0	0.0%
	UPPER MIDDLE	0	0.0%
	LOWER MIDDLE	24	24.0%
	UPPER LOWER	64	64.0%
	LOWER	12	12.0%
HYGIENE	SATISFACTORY	24	24.0%
	POOR	76	76.0%
DURATION OF BEEDI ROLLING (IN YEARS)	<5 YEARS	11	11.0%
	5-10 YEARS	20	20.0%
	11-15 YEARS	17	17.0%
	16-20 YEARS	13	13.0%
	21-25	10	10.0%
	>25	29	29.0%
WORKING DAYS/WEEK	<3	0	0.0%
	3-5	50	50.0%
	>5	49	49.0%
	6	1	1.0%

WORKING HOURS/DAY	<3	13	13.0%
	3-5	82	82.0%
	>5	5	5.0%
NO. OF BEEDIS ROLLED /DAY	<300	22	22.0%
	300-500	70	70.0%
	501-800	5	5.0%
	>800	3	3.0%
PROTECTIVE MEASURES	NOT USING	100	100.0%
	USING	0	0.0%

Regarding safety measures, only 20 % wash hands after beedi making. None of the subjects wear gloves or masks. And no one was aware of these safety measures and the need of it.

Health hazards in beedi rolling is shown in table 3. Study showed that among 100 patients,59% had musculoskeletal symptoms, 49% had respiratory symptoms, 46% had neural symptoms, 42% had GI symptoms and 14% had eye symptoms. Among musculoskeletal symptoms most of the subjects had knee joint pain (40%) and back pain (35%). Among respiratory symptoms the most common symptom was cough (32%) followed by sneezing (22%), dyspnoea (14%) and runny nose (14%). Only one patient had tuberculosis. 39% subjects had acidity. Among neural symptoms 36% subjects had headache,18% had numbness and 11% complained of lack of sleep. Among 14% eye symptoms, 13% had diminished vision. On examination study showed that 15% of subjects had pallor.



It was observed that, as the duration of beedi rolling increases, morbidities also increases. Among the study subjects with more than 25 years of work duration, 65% were having musculoskeletal symptoms as compared to 9% of subjects with less than 5 years work duration. This is statistically significant with a p value <0.001. Like wise among subjects who had a work duration of more than 25 years, 62.1% had respiratory symptoms and 58.6% had gastrointestinal symptoms. Both were statistically significant with a p value of 0.004 and 0.002 respectively.

Table 2: Health hazards of beedi rollers

HEALTH HAZARDS	PRESENT	%
<b>RESPIRATORY SYMPTOMS</b>	49	49.00%
<b>COUGH</b>	32	32.00%
<b>DYSPNOEA</b>	14	14.00%
<b>SNEEZING</b>	22	22.00%
<b>WHEEZE</b>	3	3.00%
<b>RUNNY NOSE</b>	14	14.00%
<b>NASAL BLOCK</b>	9	9.00%
<b>TUBERCULOSIS</b>	1	1.00%
<b>MUSCULOSKELETAL SYMPTOMS</b>	59	59.00%
<b>BACKPAIN</b>	35	35.00%
<b>SHOULDER PAIN</b>	16	15.80%
<b>NECK PAIN</b>	3	3.00%
<b>KNEE JOINT PAIN</b>	40	40.00%
<b>MYALGIA</b>	21	21.00%
<b>SMALL JOINT PAIN</b>	6	6.00%
<b>GASTROINTESTINAL SYMPTOMS</b>	42	42.00%
<b>ABDOMINAL PAIN</b>	11	11.00%
<b>ACIDITY</b>	39	39.00%
<b>NAUSEA</b>	1	1.00%
<b>VOMITING</b>	0	0.00%
<b>NEURAL SYMPTOMS</b>	46	46.50%
<b>NUMBNESS</b>	18	18.20%
<b>WEAKNESS</b>	13	13.00%
<b>ANOREXIA</b>	4	4.00%
<b>INSOMNIA</b>	11	11.10%
<b>IRRITABILITY</b>	0	0.00%
<b>HEADACHE</b>	36	36.40%
<b>EYE SYMPTOMS</b>	14	14.00%
<b>DIMINISHED VISION</b>	13	13.00%
<b>ITCHING</b>	3	3.00%
<b>PAIN</b>	2	2.00%
<b>THINNING OF NAILS</b>	3	3.00%
<b>PALLOR</b>	15	15.00%

#### IV. Discussion

In India, beedi industry is predominantly a home based industry which employs over 4 million people, primarily women. This industry is spread over 13 states and three union territories in India. Dakshina Karnataka district plays an important role in beedi industry. Most of the work is home based. Beedi rolling is considered as serious occupation as these are constantly exposed to tobacco dust and other harmful chemicals.

In our study, among 100 patients, most of them lived in one small room where they do beedi rolling as well as cooking, sleeping and other daily activities. This finding was similar to a study done by Nakkeeran et al<sup>1</sup>. Most of the women were in the age group of 35-44 years. Mean age of study subjects was 36.32. In a study done by Manjula et al<sup>9</sup> the mean age of beedi rollers were 34.43 years. Due to poor socio economic status and poor housing condition, female beedi rollers were forced to work continuously for many hours in improper working postures. Our study showed that women with poor socioeconomic status were involved in beedi rolling which was statistically significant (p value 0.005). Study conducted by Rajashekhar and Sreedhar showed that beedi rolling is mainly conducted at home and all the members are exposed to hazardous chemicals. Illiteracy was found out to be a reason for the women to be involved in this job which was statistically significant with a p value of <0.001. In the present study the mean years of service was 17 years and the mean working hours per day was 4 hours.

Personal hygiene was poor (76%) among majority of patients which was similar to a study done by K P Joshi et al<sup>2</sup> which showed 83% with poor hygiene. This poor hygiene along with other improper working condition contributes to health hazards in beedi rollers. In our present study most of the subjects had musculoskeletal symptoms (59%). This was supported by study done by Manjula et al<sup>9</sup>. Occurrence of musculoskeletal symptoms and the duration of beedi rolling was found to be statistically significant (p value 0.001). Among musculoskeletal symptoms most of the subjects had knee joint pain (40%) followed by back pain (35%). Respiratory symptoms were seen in 49% of subject which included cough (32%), sneezing (22%),

dyspnoea (14%), runny nose (14%) , nasal block (9%) and wheeze (3%). Other health problems commonly seen were acidity, followed by numbness, weakness, and eye problems. In a study conducted by Gopal M, 65% had aches and 9.7% had cough<sup>10</sup>. Ranjith singh and Padmalatha reported that beedi rollers were mostly affected by respiratory diseases, followed by skin diseases, gastrointestinal diseases and musculoskeletal diseases. In our study it was noted that most of the women are unaware of the health facilities availed to them.

## V. Conclusion

From the present study we conclude that most of the female beedi rollers from a poor socio economic status and illiterate was involved in this occupation. As the duration of beedi rolling increases the health hazards also increases, the most common being the musculoskeletal symptoms followed by respiratory and neurological symptoms. Beedi rollers are unaware of the safety measures that has to be followed while being in the job and the health care facilities provided to them. Awareness among beedi rollers regarding proper safety measures and proper posture should be done to reduce the risk of health hazards. Since beedi rolling is an organised sector and due to lack of available policies for home based beedi rollers, steps have to be taken by policy makers to include home based beedi rollers into the policy.

## References

- [1]. Nakkeeran, Senthil K, Pugalendhi, Bharathi S: A study on occupational health hazards among women beedi rollers in Tamilnadu, India. *International Journal of current research*. December 2010; Vol.11(1):117-122
- [2]. K.P. Joshi , M. Robins , Parashramlu , Venu and K.M. Mallikarjunaih. An epidemiological study of occupational health hazards among beedi workers of Amarchinta, Andhra Pradesh. *Journal of Academia and Industrial Research* February 2013; volume 1(9):2278-5213.
- [3]. DivyaH, Priya K. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* . September 2014;3(3):870-871.
- [4]. Mandelia C, Subba SH, Yamini. Effects of Occupational Tobacco Exposure on Foetal Growth, among Beedi Rollers in Coastal Karnataka. *Journal of Clinical and Diagnostic Research : JCDR*. 2014;8(5):JC01-JC04. doi:10.7860/JCDR/2014/7710.4327.
- [5]. Madhusudan M, Patil D, Jayaram S. Occupational Health Profile of Beedi Workers in Coastal Karnataka. *Natl J Community Med* 2014; 5(2):157-160
- [6]. Sabale RV, Kowli SS, Chowdhary PH. Working condition and health hazards in beedi rollers residing in the urban slums of Mumbai. *Indian Journal of Occupational and Environmental Medicine*. 2012;16(2):72-74.
- [7]. Yasmin S, Afroz B, Hyat B, D'Souza D. Occupational health hazards in women beedi rollers in Bihar, India. *Bull Environ Contam Toxicol*. 2010;85:87-91.
- [8]. Voluntary Health Association of India-India Final Research Report 2010
- [9]. Manjula A, Leonard M, Anna S, K.S. Prasanna, Jayaram S. Study of morbidity pattern of female beedi workers in the urban field practice area of Mangalore, Southern India. *International Journal of A J Institute of Medical Sciences*. 2012;1(1): 41-46.
- [10]. Gopal M. Health of women workers in the beedi industry. *Medico friends circle bulletin*. 2000;268:1-7.