

Original Research Article**Study of morbidity pattern of female beedi workers in the urban field practice area of Mangalore, Southern India**Manjula Anil,¹ Leonard Machado,² Anna Sequeira,¹ K. S. Prasanna,¹ Jayaram Subramanya¹¹Department of Community Medicine, A.J. Institute of Medical Sciences, Mangalore, Karnataka, India²Department of Public Health, Manipal University, Manipal, Karanataka, India**Abstract**

Rolling beedi an indigenous, handmade cigarette, has provided employment for millions of Indians. Beedi rolling is mostly made by women and girls sitting at home and is regarded as primarily women's work. This cross sectional study was aimed to assess the morbidity pattern and to find the pattern of healthcare seeking behavior of beedi workers in the urban field practice area of Mangalore during October 2008-February 2009. Data was collected using a pre-tested and semi structured questionnaire. Data was analysed using SPSS 16.

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1. Introduction

Health is an integral part of socio-economic development of any nation. As there is no direct method of measuring health, it can be measured indirectly by finding the incidence of ill health or what is called "morbidity".¹ Few of the factors that influence the health of the population are housing, water, sewage and waste disposal, nutrition and education. In addition to this, health of any worker is also influenced by the type of work and the working environment. Beedi workers come under CODE N.C.O., 2004-7416.90 and equivalent code number of N.C.O,1968-789.90 in the National Classification of Occupations (Tobacco Preparers and Tobacco Product Makers).² Rolling beedi, an indigenous, handmade cigarette, has provided employment for millions of Indians.³ Beedi Rolling is mostly made by women and girls sitting at home and is regarded

as primarily women's work. The two main components of the production process are leaf cutting and beedi rolling. These depend on the workers skill. Low output in women's beedi rolling is because of responsibilities at home. The women do all domestic work besides, related activities like getting raw materials, cutting leaves, soaking them, handing over the finished products and so on. The women rolling the little brown tendu leaves into slim cigarettes and tying them with filaments of bright red cotton thread are exposed to a number of health problems. The poor economic status of these workers renders them incapable of accessing health services. Low income is not the only problem faced by the beedi rollers but the working conditions threaten their physical well being as well.

Beedi workers in India- the third largest component of the work force in India after

agricultural workers and textile workers- live and work in conditions of poverty and exploitation.⁴ The beedi industry provides full and part time employment to nearly 75 lakh people out of which 90% are women. Overwhelming majority are home based.⁵ In India this industry is spread over 13 states and three union territories. Large private companies control the production of beedi's, while the workers earn the pittance and face all the insecurities of work in the informal sector. Beedi industry is among the few regulated trades, such as Beedi and Cigar Workers Act, 1966 and Beedi Workers Welfare Fund Act, 1976, regulate it. Under the Welfare Fund Act of 1976, Beedi workers are entitled to receive scholarship and uniform for their children, maternity benefits, housing and life insurance and health services along with sports and recreation service.⁵ The ground realities are however very different. Most beedi workers are however denied these benefits. To organize the basic health services, the importance of reliable information on morbidity is obvious. At present morbidity data available for beedi workers are from hospitals, which do not give reliable picture of the entire spectrum of disease in them. Hence the present study was carried out to assess the morbidity pattern and the healthcare seeking behavior of female beedi workers.

2. Materials and methods

This cross sectional study was carried out from October 2008 to February 2009. Beedi workers of Kavor branch who come under the urban field practice area of Kavor Health Centre of A.J. Institute of Medical Sciences (AJIMS), Mangalore were chosen for the study. This urban field practice area of the institution is located in the coastal region of Karnataka State in India. This place is well-known for its educational marvels and has good rail and major roadways connectivity.

The sample size was calculated by using the formula, $n = 1.96 p^*q/L^2$ ($p=15\%$ and $L=10\%$ of p). Eligible study participants of female beedi

workers were selected by probability sampling technique. Written consent was obtained from the eligible study participants. A pre-tested questionnaire which was divided into 3 sections, as mentioned below was administered.

- a) General information of the beedi workers.
- b) Individual observation of the beedi workers.
- c) The clinical assessment of the beedi workers.

A sample of 113 female beedi workers was selected and the primary data was collected by interviewing the selected respondents. The respondents were subjected to medical examination by a doctor to examine the physical health using the examination protocol available. Beedi workers residing in the urban field practice area of AJIMS were included in the study population and individuals who did not give their consent to participate were excluded from the study.

Data were coded and analyzed using statistical packages such as Microsoft EXCEL and SPSS version 16. Analysis included cross tabulations, diagrammatic presentation and Chi square test. For statistical test $p < 0.05$ was taken as the significance level.

3. Results

From a study universe of 500 beedi workers, engaged in beedi rolling, 113 subjects were enrolled for the study. The beedi workers comprised of the full time beedi workers and part time beedi workers. Their respective presentation in the study were 104 (92 %) and 9(8 %). Only 51(45%) of the beedi workers were pass book holders. Table 1 and 2 depict the demographic profile of the study population. There were no male beedi rolling workers. Even though child labour under 14 years is illegal in hazardous industries according to Child Labour Regulation Act 1956, there was one subject of age 14 years. Most of the study subjects 88(78%) were married while the study subjects who were separated and widow was 6(5.5%) and

5(4%) respectively. Around 21(19%) were illiterates with 68 (60%) had primary education. Only 5 (4%) had Higher Secondary education. Further majority of the beedi workers were Hindu's 100(88%) followed by Muslims 10(9%) and Christians 3(3%).

Table 1: Age profile of the study subjects (n=113)

Age	Minimum	Maximum	Mean	SD
	14 yrs	69 yrs	34.43 yrs	10.74 yrs

Table 2: Demographic profile of the study subjects (n=113)

	Number	Percent
Marital Status		
Married	88	78
Unmarried	14	12.5
Separated	6	5.5
Widow	5	4
Total	113	100
Literacy status		
Illiterate	21	19
Primary education	68	60
Secondary	19	17
Higher secondary	5	4
Total	113	100
Religion		
Hindu	100	88
Muslim	10	9
Christian	3	3
Total	113	100
Occupation		
Full time	104	92.0
Part time	9	8.0
Total	113	100

Fig. 1 represents the place of beedi rolling. It was observed that majority of the beedi workers rolled beedi's inside the house. Further, among those who rolled beedi's inside the house, 65(84%) suffered from atleast one episode of illness during the last 12 months (p<0.001). Hence the risk of suffering from morbidity is more in this group (Table 2).

Fig. 1: Place of beedi rolling

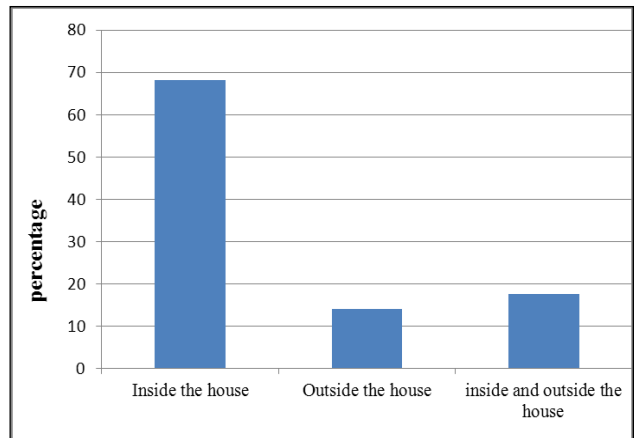


Table 3: Place of beedi rolling

Place of Beedi rolling	Ill during last 12 months		Total
	Yes	No	
Inside the house	65	12	77
Outside the house	06	10	16
Combination*	14	06	20
Total	85	28	113

*Combination includes beedi rolling inside and outside the house

Table 4 represents the days of beedi rolling per week among the study population. On an average, the beedi workers roll beedi's for 6 days in a week. It was also noticed that among 20(18%) of the beedi workers who rolled beedis on all days in a week, 17(15%) were full time beedi workers.

Table 5 represents the pass book status and morbidity among beedi workers during the past 12 months. Only 51(45%) of the beedi workers were pass book holders. Among the non pass book holders, 48(77%) were ill during the last 12 months.

Table 4: Days of beedi rolling per week

Days of beedi rolling/week	Full time	Part time	Total Number (%)
2	1	0	1(1)
3	2	1	3(3)
4	13	1	14(12)
5	21	1	22(19)
6	50	3	53(47)
7	17	3	20(18)
Total	104(92%)	9(8%)	113(100)

The non pass book holders are the unauthorized beedi workers who are exempted from the benefits given by the beedi companies in terms of provident fund, sick leave etc. The difference between pass book and non pass book holders with regard to morbidity was not significant. ($p>0.05$)

Table 5: Pass book status

Pass Book Status	Morbidity during last 12 months		Total (%)
	Yes	No	
Yes	37	14	51 (45%)
No	48	14	62 (55%)
Total	85 (75%)	28(25%)	113 (100%)

Table 6 suggests among 43(38%) beedi workers who reported use of medications for various chronic diseases, majority are full time beedi workers. Also among the full time beedi workers majority took continuous medication on musculo skeletal disorders 8(19%), anaemia 7(16%), followed by cardiovascular diseases 6(14%).

Table 6: Use of medications for various chronic diseases by the beedi workers

Use of Medications	Number (%)
Musculo skeletal disorders	8 (19)
Anaemia	7 (16)
Cardiovascular diseases	6 (14)
Skin infection	2 (5)
Psychiatric disorders	3 (7)
Respiratory diseases	4 (9)
Other*	13 (30)
Total	43 (100)

*Other includes epilepsy, ear pain, sinusitis, piles

Table 7 depicts that 72(64%) of the study population had musculoskeletal disorders followed by anaemia. Also gastrointestinal disorders, obstetric and gynecological conditions, ophthalmic conditions, were the common health problems encountered in this group.

Table 7: Morbidity profile of the study population.

Morbidity	Number (%)*
Musculo skeletal disorders	72(64)
Anaemia	53(47)
Obstetric and gynecological conditions	48(42)
Ophthalmic conditions	41(36)
Gastrointestinal disorders	41(36)
Respiratory disorders	40(35)
Others	

* Percentages are calculated on horizontal basis. Data includes the beedi workers with more than one health problems.

The Fig. 2 suggests that majority (63%) availed healthcare services from local general practitioners, followed by private hospitals (20%) and the government health centre's (12%).

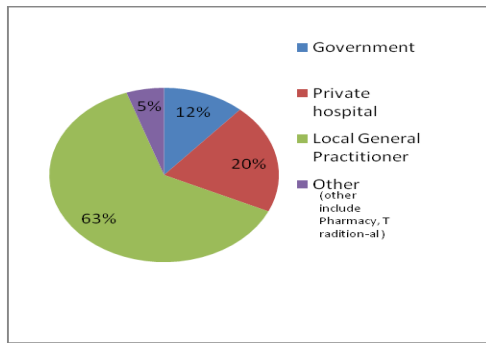


Fig. 2: Healthcare-seeking behavior of the study population

4. Discussion

Majority of the study subjects (60%) were educated up to primary school followed by secondary 19(17%) and higher secondary (4%). As per the provisional report of Census of India 2011⁶, overall literacy rate in South Canara district is 88.62% (Females 84.04%), whereas in the present study illiteracy was found to be 19%. In a study conducted by Ghosh et al. the mean age of the study population was 45.9 years.⁷ Rajasekhar et al. reported three female children below 14 years of age engaged in beedi rolling in South Canara district.⁸ Child labour under 14 years of age is illegal in hazardous industries, according to Child Labour Regulation Act, 1956. Figures relating to employment of children tend to be unreliable. According to Sudharshan and Kaur, roughly 10% of all female beedi workers are under 14 years of age.⁹ While in the present study 1(0.88%) female beedi worker was 14 years of age and the mean age was found to be 34.43 years. Vidhubala and Maria in their study reported that 23.5% were unmarried¹⁰, whereas in the present study it was found to be 12(12.5%). Rajsekhar and Sreedhar in their study showed that all subjects undertook beedi work at home and hence all household members are exposed to the hazard of inhaling tobacco smell.¹¹ In the present study, 68% rolled beedi's inside the house and the combination (inside as well as outside the house) beedi rolling was found to be 17.6%.

Various acts have been enacted by the Government of India to safeguard the welfare of beedi workers, such as Maternity Benefit Act, 1961 (Vide Sec.37 of CW (COE) Act, 66, Payment of Gratuity Act, 1972, Medical Assistance for beedi workers etc.¹² All these benefits can be availed by the beedi workers who are entitled with the pass book. The present study suggests that 62(55%) of the beedi workers are exempted from these benefits as the pass books are not issued to them. Hence, this usually indicates the burden of illness on the non pass book holders.

Rajasekhar and Sreedhar reported backache (25%), eye problems (6.3%), headache (3%), and asthma (6.3%).⁸ Gopal reported 65% had aches and pains, 9.7% cough, 8.9% giddiness, 8.4% stomach related problems.¹³ Sen reports 62.8% headache, 51.43% back pain, 20% eye pain, 11.13% asthma.¹⁴ Yasmin et al reported that 70% of the beedi rollers suffered from eye problems, and 50% suffered from respiratory problems.¹⁵ While in the present study, majority (64%) complained of musculoskeletal problems, followed by anaemia. Also gastrointestinal disorders, obstetric and gynaecological conditions, ophthalmic conditions, were the common health problems encountered in this group.

5. Limitations

1. Since it was a cross sectional study, sub clinical cases could not be identified.
2. Actual magnitude of the morbidity may be more due to recall bias.
3. Because of the social stigma associated with RTI and STI, many cases may not have been disclosed.

6. Recommendations

1. Periodic Health checkups are necessary.
2. Health education regarding healthy work practice should be given.

3. Since the magnitude of the health problems is seen more among non-passbook holders, effort should be made to provide passbook to the non-passbook holders.
4. Awareness is to be created among the beedi workers regarding the health care facilities available in the Government hospitals, which is free of cost.

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