

**Gynaecological Morbidity among women beedi workers in rural areas of Nizamabad district, Telangana**

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**Type of Publication:** Original Research Paper

**Conflicts of Interest:** Nil

**Abstract**

**Background:** Beedi rolling is the popular small scale industry in Telangana which provides employment to over 1 million people. Although the risk of many diseases exists among beedi rollers, little information is available about gynaecological problems and their associated risk factors.

**Objectives**

- 1.To study the prevalence of gynaecological morbidity among women beedi workers in rural areas of Telangana.
2. To study the risk factors associated with gynaecological problems in the study population.

**Settings and Design:** Community based cross sectional study

**Methodology:** Multistage stratified random sampling method. After sample size calculation 560 people were interviewed in 14 different villages, out of which 528 responses were complete. The questionnaire consisted of details regarding socio demographic history, occupational exposure history, personal habits, clinical history and general examination findings. Statistical analysis used: Epi info 7.1 and Microsoft excel Windows version 17

**Results:** Forty two percent of the women were suffering from various gynaecological problems. Most of them have undergone hysterectomy for menorrhagia and other symptoms. This study also found a strong association between increasing age, increasing experience in beedi

rolling and Gynaecological morbidity. Beedi workers who were not following hygienic hand washing practices were also more prone to gynaecological problems than the ones who were following better hygienic practices.

**Conclusions:** The women beedi workers who are constantly exposed to tobacco dust are prone to various morbidities including gynaecological morbidity. Further research is needed to establish the role of other risk factors in the women beedi workers.

**Key-words:** Gynaecological morbidity, beedi rollers, natural menopause, surgical menopause.

**Introduction**

Workers all over the world face several health hazards due to the poor environmental conditions or due to the lack of basic services at the workplace. Unorganized sector constitutes almost 80% of the employment in India. 1 Women form an integral part of workforce in this sector especially in rural areas. Most of them earn their livelihood from agriculture, construction work, beedi rolling, agarbathi making, papad making, tailoring, embroidery work etc. 1 Workers in this unorganized sector are more prone to occupational hazards due to lack of monitoring and difficulties in maintaining the prescribed standards. Beedi rolling is one such semi organized or unorganized sector in Telangana state which provides employment to over 1 million people. 2 Telangana is the largest beedi producer after Madhya

Pradesh. Most of the women beedi workers in the state of Maharashtra are also Telugu speaking people which is a regional language of Telangana state. 3 The task of beedi rolling is generally done by women and girls sitting at home. Most of the women are from backward, scheduled castes and tribes belonging to low income group. 4 Despite the work being labour-intensive, women continue to do it as they are less aware of other sources of livelihood. They are prone to various diseases such as musculoskeletal problems, respiratory morbidity, gastrointestinal disturbances, eye problems, throat irritation, gynaecological problems etc. 5 Though there were some studies reporting prevalence of gynaecological problems among beedi workers, there are very few studies regarding the risk factors for these problems. Hence this study was intended to find the prevalence and relation between various potential risk factors and gynaecological morbidity.

### **Objectives**

- 1.To study the prevalence of gynaecological morbidity among women beedi workers in rural areas of Telangana.
- 2.To study the risk factors associated with gynaecological problems in the study population.

### **Methodology**

This was a community based cross sectional study conducted among women beedi workers residing in rural areas of Telangana state. There were 10 districts in Telangana state in 2015 when the study was conducted. Out of 10 lakh beedi workers in the state, almost half of them (4,46,524) are employed in Nizamabad district alone (officially registered, Source: Asst.P.F commissioner EPFO , Nizamabad 2009-10). 5 If the unregistered workers are also taken into account the actual number of people involved in beedi making will be much higher. In 2006 the Indian government also named Nizamabad one of the country's 250 most backward districts. This district

was divided into three revenue divisions, Bodhan, Kamareddy and Nizamabad. These were sub-divided into 36 mandals and 922 villages. 6 Taking 20% as the anticipated prevalence as per the pilot study done in February 2015, with a 95 % confidence interval the sample size was estimated to be 256. Since the sampling procedure to be used was multistage stratified sampling 7 , a design effect of 2 was used to estimate the final sample size. After adding the non response rate of 10%, sample size was finalized to 560. Study was conducted for a period of one year, in 14 villages selected from 7 mandals from November 2015 to October 2016. Already existing 3 revenue divisions of Nizamabad district were taken as strata. Mandals were considered as Primary sampling units (PSU) (7 mandals were selected). Villages were considered as Secondary sampling units (SSU) (14 villages were selected). Households were considered as Tertiary sampling units/elementary units (TSU). From each village 40 households were selected by right hand rule method to attain a sample size of 560. Final units of selection were Beedi workers. One woman per household whoever was more experienced in beedi rolling and available at the time of study was included. The eligible women were given participant information sheet and informed consent form in local language. Semi structured questionnaire was also administered in the local dialect. A total of 560 women were interviewed during the study, from which 528 responses were complete. Data was entered in Microsoft excel, Windows, Version 17.0. and analyzed in Epi Info 7 (Centre for Disease Control and Prevention, Atlanta, Georgia, USA). The study was approved by the Institute Ethics Committee of Osmania Medical College, Hyderabad.

### **Results**

Of the study population, 41.9% of the women were suffering from gynaecological problems, Almost half of

the women(43%) were in natural or surgical menopause at the time of study(Table 1). Most common complaints by women who have not attained surgical or natural menopause were irregular menstruation and menorrhagia(8.36%) followed by infertility(5.38%). The other complaints were foul smelling vaginal discharge and itching, 3 or more abortions in the past, lower abdominal pain, diagnosed cases of uterine fibroids and ovarian cysts(Table 2). Mean age at which hysterectomy was done in the study subjects was 33 years with Standard Deviation of 7.14 years. Most of the women(31%), were hysterectomized before 30 years of age(Table 3). Major reasons for which the subjects have undergone hysterectomy were foul smelling white discharge followed by menstrual problems. Reasons for hysterectomy as cited by the subjects are shown in Chart 1. Of all the hysterectomies done, 20.6% were done during 2011-2015, 29% during 2006-2010 and 23% during 2001-2005, 20% during 1996-2000. Before 1996, 7.4% subjects were hysterectomized(Chart 2). Mean age of natural menopause is 44.5 years with standard deviation of 7.97 years. One fifth (21.2%) of the total menopausal women had premature menopause, that is before the age of 40 years. One third (29.6%) of the women had early menopause that is at the age of 40-44 years. Rest of them had menopause at the age of 45 years or more(Table 4). The risk of gynaecological problems increased with increasing experience in beedi rolling. The morbidity was more in women chewing tobacco and in women who had the habit of toddy intake. Morbidity was also more in the women who did not follow proper hand hygiene practices. Association of various potential risk factors with gynaecological morbidity are given in Table 5, Table 6 and Table 7.

## **Discussion**

Prevalence of gynaecological morbidity: Almost 42% of the subjects were suffering from some or the other gynaecological morbidity at the time of the study. This correlated well with a study done in Mangalore, 8 which reported that 42% of the beedi workers suffered from obstetric and gynaecological conditions. In contrast to this, a study done in West Bengal 9 reported that 89% of the beedi workers suffered from menstrual irregularities.

Natural and surgical menopause: Out of the 528 subjects, 20.5% of the study population were in natural menopause. Premature menopause and early menopause was significantly higher in the study population compared to normal population. Out of the total women beedi workers who were in natural and surgical menopause, 51.5% had premature menopause, that is before the age of 40 years and 17.9% had early menopause, that is at the age of 40-44 years. A study done in 2007-2008 in Andhra Pradesh state 10 which included both natural and surgical menopausal women, reported that only 8.8% of the women had premature menopause and 28.4% had early menopause. About One fourth (23%) of the study population were hysterectomized for facing gynaecological problems in the past. Mean age at hysterectomy was 33 years with standard deviation of 7.14 years. In this study it was found that 18% of the women were hysterectomized before the age of 25 years. A study done in Andhra Pradesh in 2011 has shown that the mean age of hysterectomy was 24 years. 11 Another study has claimed that there was 20% increase in number of hysterectomy cases in Andhra Pradesh 12 since the insurance scheme known as Aarogyasri was launched in 2007. But in this study it was found that there was only 6% increase in the hysterectomy cases during 2006-2010 compared to 2001-2005. Thus, by the above findings, it seems that occupational exposure to tobacco has positive

relation with gynaecological morbidity following which the women were hysterectomized.

### **Infertility**

Infertility was reported by 5.6% of the women who were menstrually active. Infertility and premature menopause were also reported by a study done among beedi workers in Mumbai 13 .

### **Personal hygiene**

This study found that 72% of the study population did not follow good hand washing practices in concurrence with a study done in Mangalore 14 which also found that the personal hygiene was poor in about 76% of the beedi workers. A study done by Joshi et al 15 also found that there was poor hygiene among 83% of the study population.

### **Risk factors associated with gynaecological morbidity:**

Most of the women who suffered from gynaecological morbidity were aged above 35 years, were illiterate and were having the habits of tobacco chewing and toddy intake. The morbidity was more in the women who joined the beedi rolling service at less than 15 years and in women who had completed 20 years of service in beedi rolling than the ones who joined at a later age and had less experience. The symptoms were more in women who worked at home than the ones who worked at factory, this might be due to the fact that the women who were working in factory had the habit of washing their hands with soap when they returned home and resumed to other household activities. Most of the women (72%) either did not wash their hands at all or they did not use soap for hand washing immediately after beedi rolling before resuming into other household activities. These women had more symptoms compared to the 28% of the women who had proper handwashing practices. This might be due to the presence of microbes and fungi in the raw tobacco dust or due to

the tobacco dust itself which gained access to the reproductive tract due to the lack of personal hygiene.

**Conclusions:** The present study clearly described that most of the beedi workers were prone to various gynaecological and obstetric problems which also included premature and early menopause. Prevalence of surgical menopause was also significantly higher in them. The results obtained in this study indicate that beedi rollers seem to be facing these problems due to over handling of tobacco dust and lack of personal hygiene. There might be a decrease in gynaecological morbidity, if the workers reduce the habit of tobacco chewing, reduce the toddy intake and follow good hand washing practices (with soap) each time after handling the raw tobacco dust and before going to toilet and resuming to other household activities.

**Limitations:** Bias might have occurred in recalling the menopausal age and symptoms for which hysterectomy was done. Confounding factors such as usage of pads/other material at the time of menstruation which contribute to genital tract infections were not addressed. Gynaecological examination was not done due to financial constraints. Further research has to be done to resolve the above issues.

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**Acknowledgement:** We sincerely acknowledge the support of beedi workers and the owners of the factories who participated in the study.

**Table 1: Distribution of study subjects according to various gynaecological problems**

Gynaecological problems	Frequency(n=528)	Percentage(%)
Hysterectomized subjects	121	22.9
Subjects with gynaecological problems excluding hysterectomized and menopausal women	50	8.3
Women with premature ovarian insufficiency (Menopausal Age < 40 years)	18	3.4
Women with early menopause (Menopausal age 40-44 years)	32	6
Total women who suffered from any kind of gynaecological morbidity	221	41.9

Table 2: Distribution of study subjects according to the symptoms at the time of the study (excluding hysterectomized and menopausal women)

Symptoms	Frequency (n=299)	Percentage(%)
Menstrual problems	25	8.36
Infertility	17	5.68
Other complaints*	8	2.67
Total	50	16.7

Table 3: Distribution of study population according to the age of the subject when hysterectomy was done

Hysterectomy at the age of	Frequency	Percentage
25 years or less	22	18.1
26-29 years	16	13.2
30-34 years	30	24.7
35-39 years	32	26.4
40-44 years	9	7.4
45 years or more	12	9.9
Total	121	100

Table 4: Distribution of study population according to the menopausal age

Menopause at the age of (in years)	Frequency of natural menopause only	Prevalence Percentage(%)	Frequency of natural menopause and surgical menopause	Prevalence Percentage(%)
<30	0	0	38	16.6
30-34	5	4.6	35	15.3
35-39	13	16.6	45	19.6
40-44	32	29.6	41	17.9
45-49	34	31.5	44	19.2
50 years or more	24	22.2	26	11.3
Total	108	100	229	100

**Table 5 Sociodemographic factors association with gynaecological morbidity among the workers**

<b>Socio demographic factors and personal habits</b>	<b>Number of subjects</b>	<b>Frequency of gynaecological morbidity</b>	<b>Prevalence percentage %</b>	<b>Odds Ratio</b>	<b>P value</b>
<b>Age</b>					
>35 years	381	191	50	3.9 (2.0 -6.1)	<0.001
<35 years	147	30	20.4		
<b>Educational status</b>					
Illiterate	356	176	49.4	2.75 (1.8-4.1)	<0.001
Literate	172	45	26.1		
<b>Socio economic status*</b>					
Lower class	473	197	41.6	1 (0.5-1.6)	0.3
Middle class	55	24	43.6		
<b>Personal habits</b>					

<b>Tobacco chewing</b>					
Present	99	55	55.5	2 (1.2-3)	0.001
Absent	429	166	38.6		
<b>Toddy intake</b>					
Present	82	49	59.7	2.36 (1.42-3.84)	<0.001
Absent	446	172	38.5		

\*BG Prasad Classification

**Table 6 Occupational factors association with gynaecological morbidity among the beedi workers**

<b>Occupational factors</b>	<b>Number of subjects</b>	<b>Frequency of gynaecological morbidity</b>	<b>Prevalence percentage %</b>	<b>Odds Ratio</b>	<b>P value</b>
<b>Age at joining the service</b>					
<15 years		210	241	5.2 (2.7-1.6)	<0.001
> 15 years		11	66		
<b>Completed years of service</b>					

>20years		184	185	3.3 (2.2-5)	<0.001
<20 years		37	122		
<b>Place of beedi rolling</b>					
In and around the house		199	264	1.47 (0.85-2.6)	0.08
In Factory		22	43		

**Table 7: Association of hand washing practices with gynaecological morbidity.**

<b>Hand washing practices immediately after beedi rolling (before resuming to household activities or before going to toilet)</b>	Gynaecological morbidity frequency (percentage)	Gynaecological morbidity absent (percentage)	Total (100%)	Chi square and P value
No Hand washing practice	10(52.6)	9(47.4)	19	Chi-square = 8.5 P = 0.01
Hand washing without soap	164(45.3)	197(54.7)	362	
Hand washing with soap	47(32)	100(68)	147	
<b>Total</b>	164	364	528	

Chart1: Health problems for which hysterectomy was done:

### Health problems for which hysterectomy was done

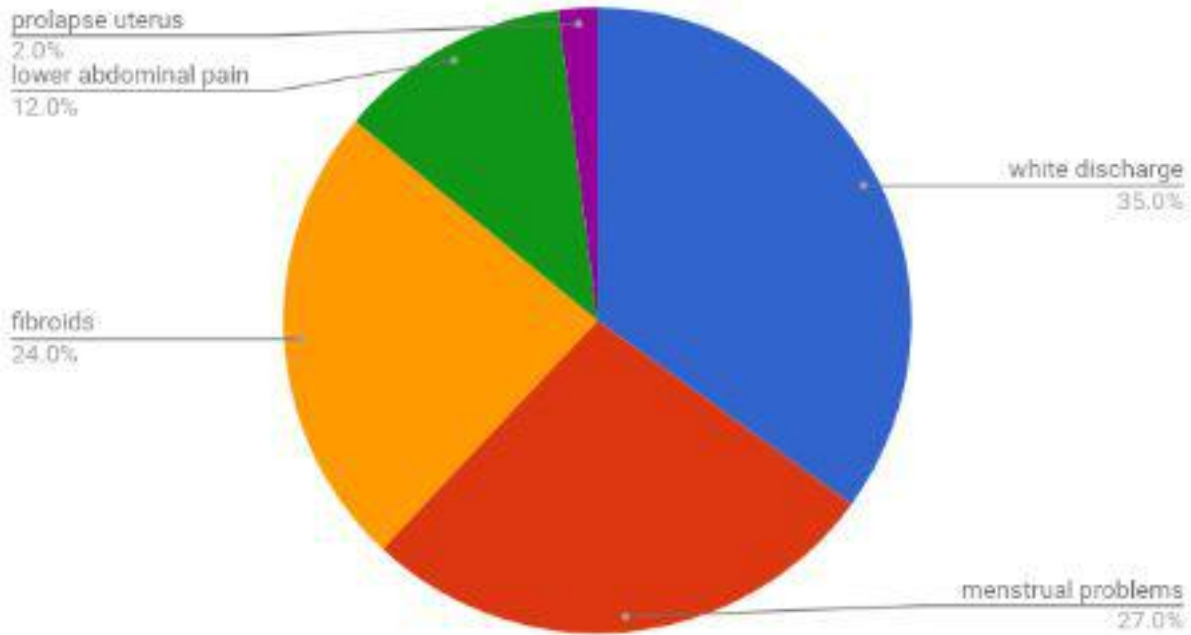


Chart 2: Number of hysterectomies done according to calendar years:

### Number of hysterectomies done during-

