

Cross sectional study of health problems in female bidi rollers in Telangana, India

N. Kawale S.^{1*}, A. Shinde M.², S. Shinde P.³

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^{1*} Suchita N. Kawale, Assistant Professor, Department of Community Medicine, Mallareddy Institute of Medical Sciences, Suraram, Telangana, India.

² Manjusha A. Shinde, Assistant Professor, Department of Physiology, Chalmeda Anandrao Institute of Medical Sciences, Kareemnagar, Telangana, India.

³ Prashant S. Shinde, Consultant, Department of Paediatric Gastroenterologist, Gleneagles Global Hospital, Lakdi ka pul, Hyderabad, Telangana, India.

Introduction: Bidi manufacturing in India is one of the biggest jobs for women in the age-old industry and unorganized sector. Female bidi rollers are exposed to unfiltered tobacco dust and volatile compounds containing hazardous chemicals while making bidis as they do not use any protective wear. Our objective of the study is to find out the health problems in female bidi rollers and suggest preventive strategies. **Materials and methods:** The present study was a community based cross sectional descriptive study. The study was undertaken in bidi rolling factories of Telangana state. Randomly five bidi factories were selected out of 72 by lottery method and all the female bidi rollers present in the bidi factory at the time of visit were taken as sample size which was 400. **Results:** The present study shows that maximum number of female bidi rollers 272(68%) were found in the reproductive age group 15-45 years, 240 (60%) belong to socio economic class IV, 256(64%) were illiterate and around 248 (62%) of the females were aware about the adverse health effects of bidi rolling. The most common morbidity was pain in shoulder/neck observed in 290(72%) females.176(44%) respondents were suffering from backache/ headache.155(38%) having generalised weakness,112(28%) having cough and 88(22%) having breathlessness. **Conclusion:** The present study concludes that poverty, illiteracy and ignorance are the main factors forcing female bidi rollers in this harmful occupation. They should be encouraged to use protective material like protective clothing, gloves or masks to avoid harmful exposure to tobacco causing severe health issues.

Keywords: Bidi rollers, Cross sectional study, Health problems

Corresponding Author	How to Cite this Article	To Browse
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Introduction

A bidi is a cigarette made from flavourful tobacco citrates. After World War II, bidi industry became an important cottage industry in India. With the discovery of power looms in the 1960s, many of the leaders were left unemployed, and they took up bidi rolling jobs in Telangana region of Andhra Pradesh. By the mid-1970s, major tobacco industries were concentrated in Nizamabad, Kareemnagar and Warangal. Bidi workers are often the most vulnerable group in society, most of which depend on Bidi rolling in rural India. Bidi manufacturing in India is one of the biggest jobs for women in the age-old industry and unorganized sector [1]. Female bidi workers are unaware about the health hazards of bidi rolling. They ignore the health problems arising out of bidi rolling and never seek medical help for it due to fear of loss of daily wages. Most of these female bidi workers are in reproductive age group and exposed to the harmful effects of bidi tobacco. Bidi is made by using 0.2 to 0.5 grams of pulverized sun-cured (unfiltered) locally grown tobacco rolled in to a cylindrical shaped tendu or temburi leaf and secured with a thread. The tobacco rolled in bidis is different from that used in cigarettes and it is referred as bidi tobacco. Bidi rolling is a one of the major occupations for most of the women, who form the root of the industry. Mostly the people who are employed in this job are illiterates. They are engaged in the process of bidi rolling since a very young age and they roll approximately 500-1000 bidis everyday using 250-400gm of tobacco. These bidi rollers work in small factories or at household-base enterprises or at home in an environment laden with tobacco dust. Individuals working for 6 to 10 hr/day and inhale swallow, expose their skin and mucous surface to significant amounts of particulate tobacco. They are exposed to unfiltered tobacco dust and volatile compounds containing hazardous chemicals while making bidis as they do not use any protective wear [2]. Our objective of the study is to find out the health problems in female bidi rollers and suggest preventive strategies.

Materials and Methods

Setting and type of study: The present study was a community based cross sectional descriptive study. The study was undertaken in bidi rolling factories of Telangana state. In Telangana, the bidi sector is spread across 16 districts covering 45 constituencies.

There are about seven lakh bidi workers in the state, of which more than 90% are females.

Sampling method and sample size: At present, there are 72 bidi factories in Telangana. Randomly five bidi factories were selected out of 72 by lottery method and all the female bidi rollers present in the bidi factory at the time of visit were taken as sample size which was 400.

Duration of study: The study was conducted from January 2019 to March 2019.

Inclusion criterion: Only those women who were present at the time of visit to the bidi factory and enthusiastic to answer the interview schedule, were included verbal consent in the study.

Exclusion criterion: Those women who were not willing to participate in the excluded study were.

Ethical consideration and permission: Informed was taken before the interview and nature and purpose of study was explained to the female bidi rollers. Privacy, confidentiality and anonymity were maintained throughout the study.

Data collection procedure: The female bidi rollers were questioned directly by using an interview schedule to fulfill the objectives of the study. The questions included in the interview schedule have been developed to get responses specific to the objectives of the study. All the female bidi rollers were clinically examined and information on age, nature and duration of the job, hours of work per day, medical history, personal safety measures taken, habits, health problems, living conditions, marital status, family history, socioeconomic status and literacy were recorded using a standard questionnaire.

Data analysis: The detailed data was entered into the Microsoft Excel sheets, presented in the form of tables and subsequently analyzed statistically using percentages and Chi-square test in SPSS format. For all the statistical tests, a 'p value' of less than 0.05 was considered as statistically significant and p value of less than 0.01 was considered as statistically highly significant.

Results

Age wise distribution of female bidi rollers shows that maximum number of female bidi rollers 272(68%) were found in the reproductive age group 15-45 yrs followed by 72(18%) in > 45years and 56(14%) in <15 years of age (Table 1).

Table-1: Age wise distribution of female bidi rollers (n = 400).

Age in years	Number	Percentage
<15	56	14
15-45	272	68
>45	72	18
Total	400	100

Association between socioeconomic status and literacy of female bidi rollers shows that 240 (60%) of bidi rollers belong to socio economic class IV followed by 160 (40%) class III. None of them belonged to class I, II and V. While 256(64%) bidi rollers were illiterate, 84 (21%) had primary education and 60 (15%) were educated upto secondary level. None of them had higher secondary education. There was statistically high significance of association found between socioeconomic status and literacy of female bidi rollers (p value <0.01) (Table 2).

Table No.-2: Association between socioeconomic status and literacy of female bidi rollers (n = 400).

Socio economic class	Illiterate (%)	Primary education (%)	Secondary education (%)	Total (%)
Class I, II	Nil	Nil	Nil	Nil
Class III	80(20)	44(11)	36(09)	160(40)
Class IV	176(44)	40(10)	24(06)	240(60)
Total	256(64)	84(21)	60(15)	400(100)

Chi square value = 23.5, degree of freedom = 2, p value <0.01, Statistically highly significant.

Association between literacy status and awareness about adverse effects of bidi rolling on health among female bidi rollers shows that 248(62%) of the females were aware about the adverse health effects of bidi rolling and 152 (38%) were unaware about it. Out of those aware about it,132 (33%) were illiterate, 64 (16%) had primary education and 52(13%) had secondary education. There was statistically high significance of association found between literacy status and awareness about adverse effects of bidi rolling on health among female bidi rollers (p value <0.01) (Table 3).

Table-3: Association between literacy status and awareness about adverse effects of bidi rolling on health among female bidi rollers (n = 400).

Awareness	Illiterate (%)	Primary education (%)	Secondary education (%)	Total (%)
Yes	132(33)	64(16)	52(13)	248(62)
No	124(31)	20(05)	08(02)	152(38)
Total	256 (64)	84 (21)	60 (15)	400 (100)

Chi square value = 34.5, degree of freedom = 2, p value <0.01, Statistically highly significant. Table 4 signifies various health problems among female bidi rollers. The most common morbidity was pain in shoulder/neck observed in 290 (72%) females.176(44%) respondents were suffering from bachache/ headache. 155 (38%) having generalized weakness,112(28%) having cough and 88 (22%) having breathlessness. 68(17%) respondents were suffering from the problem of spondylitis. 20(5%) respondents have stated that, they were having dermatological menifestation. 66 (16.5%) of the respondents were facing the problem of gastrointestinal illness, and 56 (14%) are facing the problem or Asthma due to constant contact with tobacco dust. Tuberculosis was also one of the major health problems faced by 38(9.5%) respondents. Apart from this 07 (1.8%) respondents have stated that, they are facing the problems of ear, nose, throat and eye infections. It is revealed that, female bidi rollers are facing many health problems possibly due to direct inhalation of tobacco flakes and dust. As per the collected information, majority of female bidi rollers are having one or more health problems like headache, back ache, spondylosis, respiratory disorder, asthma etc.

Table No.-4: Health problems among female bidi rollers *(n = 400).

Health problem	Number	Percentage
Pain in shoulder / neck	290	72
Backache /Headache	176	44
Generalised weakness	155	38
Cough	112	28
Breathlessness	88	22
Spondylitis	68	17
Gastrointestinal illness	66	16.5
Tuberculosis	38	9.5
Dermatological menifestation	20	05
Asthma	56	14
Diabetes mellitus	28	07
Gynaecological problems	16	04
Cardiovascular illness	08	02
Ear, nose, throat and Eye infections	07	1.8
Others	64	16

* Multiple answers.

Discussion

Bidi rolling is considered as serious occupation which leads to health hazards as these workers constantly expose themselves to tobacco dust and other dangerous chemicals. Due to poor socio-economic status and poor environmental conditions, the bidi workers are forced to work continuously for hours in improper working postures and beyond their normal working capacities which causes serious physiological manifestations [3]. As the bidi rolling is one of the main occupations of females of Telangana bidi factories, the present investigation attempted to understand the health problems in female bidi rollers. Out of total 400 participants in the present study, majority 272(68%) were in the age group of 15-45 years. Joshi K.P. et al in an epidemiological study of occupational health hazards among bidi workers of Amarchinta, Andhra Pradesh found that majority of the women bidi rollers (55%) were in the age group of 15-35 years. The mean age of the participants was 28.68 years [3]. In the present study it was found that 240 (60%) of bidi rollers belong to socio economic class IV followed by 160 (40%) class III and 256 (64%) bidi rollers were illiterate. Sable R. et al studied working condition and health hazards in bidi rollers residing in the urban slums of Mumbai and found that the mean age of bidi rollers was 45 years with SD of 12 years [4]. 42.31 and 25% belonged to socio-economic class IV and class III respectively. Around 42.31% of bidi workers were illiterate. The study findings are parallel to the present study. Poor socio-economic status, poor education and lack of awareness lead to various health problems to the bidi workers. During rolling of bidi, nicotine of tobacco powder comes into direct contact with the skin and becomes absorbed through the skin into the blood. The present study showed that 248 (62%) of the females were aware about the adverse health effects of bidi rolling and 152 (38%) were unaware about it. Palande P. et al has done a study of health problems of women bidi rollers in Ahmednagar district and found that, majority of the respondents (74.9%) were aware about the adverse or negative effects of bidi rolling work on their health while 25.1 of respondents were not aware about the negative or adverse effects of bidi rolling work [5]. It shows that, awareness about adverse effects of occupation is significantly high but still majority of women continue to work in the same occupation due to poverty and unavailability of other job opportunity.

Lack of awareness is because of illiteracy and ignorance. The study findings are similar to the present study. The most common morbidity in the present study was pain in shoulder/neck observed in 290 (72%) females which may be due to improper working postures for long hours. 176 (44%) respondents were suffering from headache/headache. 155 (38%) having generalised weakness, 112 (28%) having cough and 88 (22%) having breathlessness. 68 (17%) respondents were suffering from the problem of spondylitis. Joshi K.P et al in An epidemiological study of occupational health hazards among bidi workers of Amarchinta, Andhra Pradesh found that most frequent pain is shoulder pain in both males and females (80.85%) followed by back pain and neck pain (76.60%) [3]. Apart from the musculo-skeletal problems, there were also other problems reported by the bidi workers like cough (27%), breathlessness (20%), acidity (40%), generalized weakness (34%) and skin diseases (dermatitis) (21.27%) and tuberculosis (6.8%). In the present study about 20(5%) respondents have stated that, they were having dermatological manifestation. 66 (16.5%) of the respondents were facing the problem of gastrointestinal illness, and 56 (14%) were facing the problem or Asthma due to constant contact with tobacco dust. Tuberculosis was also one of the major health problems faced by 38 (9.5%) respondents. Apart from this 07 (1.8%) respondents have stated that, they are facing the problems of ear, nose, throat and eye infections. In a study by Palande P. et al, 15.6% respondents have stated that, they were suffering from respiratory disorder [5]. 3.9% of the respondents were facing the problem of gastrointestinal illness, and 16.1% were facing the problem or Asthma. 18.9% respondents were suffering from the problem of spondylosis. It is revealed that, female bidi rollers are facing many health problems possibly due to direct inhalation of tobacco flakes and dust. As per the collected information, majority of female bidi rollers are having one or more health problems like headache, backache, spondylosis, respiratory disorder, asthma etc. Mittal et al, found that postural pains, eye problems and burning sensation in the throat were common ailments in women bidi rollers [6]. A study done by Anil et al in Mangalore, Karnataka has shown that the most common morbidity among beedi workers were musculoskeletal disorders (64%), gynecological problems (42%), gastrointestinal disorders (44%) and respiratory morbidity (36%) [7].

A study done by Mukherji et al, in Murshidabad of West Bengal, has shown that most of the bidi workers or their family members suffered from diseases like tuberculosis (22.5%), oral diseases (36.7%), ulcers (24.2%). A majority (89.2%) of the respondents replied that they suffer from irregular menstruation followed by cough (76.7%), Hypertension (65.8%), throat ache (64.2%), fatigue (59.2%), callosities (56.70%), numbness in the hands (55.8%) and other respiratory diseases (52.50%). The study findings are comparable to the present study [8].

Limitation

The survey of the study is confined to limited areas, therefore, the results of the study cannot be generalized to other bidi industries situated in the different districts of India.

Conclusion

In a nutshell, the present study concludes that poverty, illiteracy and ignorance are the main factors forcing female bidi rollers in this harmful occupation. It is observed that, majority of the female bidi rollers are having awareness about negative or adverse effects of bidi rolling work. They should be encouraged to use protective material like protective clothing, gloves or masks to avoid harmful exposure to tobacco causing severe health issues.

What the study adds to the existing knowledge

The present study found that awareness and health education about the tobacco health hazards is very much necessary for the bidi rollers. Therefore, the dimensions of the present study variables revealed that the health hazards existing in the bidi rolling work and experienced by the women beedi rollers is at dangerous level.

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Author Contribution

Dr. Suchita N. Kawale: Concept, study design, manuscript preparation, **Dr. Manjusha A. Shinde:**

Data Collection, manuscript preparation, **Dr. Prashant S.:** Data analysis, manuscript preparation

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