

# Gynaecological, Neurological and Neonatal health hazards evidenced in female bidi workers of Urban slums : Need to institute legislation, strategies and programs

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## ABSTRACT

Bidi rolling industry employs 90% of female workers of low socioeconomic status out of 4.9 million workers in India. The present study aims at first evidence synthesis of occupational health hazards of young teenage girls and women labourers involved in five urban slums of Jalandhar district of Punjab. High prevalence of gynaecological, neonatal and neurological disorders have been reported among these home workers of unrecognised sectors during a study period of one and a half year. Sample size was of 125 female predominantly with age groups of 10-20 years (mostly unmarried girls) and 20-30 years (married female with new born babies). Snow balling sampling was used to identify bidi rollers. Databases were developed in Census and Survey Processing System (CSPRO) and Microsoft Excel. Most common morbidity were menstrual irregularities and prolonged fatigue followed by gestational hypertension. Neonatal Bronchitis and tanning of skin, still births and births with low weight babies are a matter of high risk for future generation. Neurological symptoms including numbness of fingers and vertigo in age-group of 40-50 years wreak havoc on long term exposure to cheap form of tobacco. Need of social security, shifting of bidi manufacturers to far off places from home, awareness to alternative skill development programmes, strict implementation and amendment of child labour laws, employment opportunity through entrepreneurial development programmes, security benefits, Rashtriya Swasthya Bima Yojanas have been recommended to secure sustainable development of girl children and women labourers of our future generations.

Key Words: Occupational health hazards, Bidi rolling, Unorganised sectors, Social security

## INTRODUCTION

A bidi is a thin South Asian cigarette containing 0.3-0.4g of tobacco wrapped in a *Diospyros melanoxylon* (tendu) leaf tied with a thread at both the ends. In India, tobacco was sown in 63,800 hectares in 2004 which has risen to 1.38 lakh hectares for 2023 winter crop. Gujarat's tobacco acreage increased by 116% in nineteen years as reported by The Times of India (February 9,2023). Bidi manufacturing is traditional agro-based industry in India and is done by girl children and women from poor socioeconomic strata (Mukherjee et al., 2014). With the help of scissors and a metal stencil guide, young girls of teenage and women of age group 20-40 years hand cut the leaves, move on to roll approximately 1000 bidis per day. Being one of the oldest industries, it employs over 60 lakh workers (Rathore and Ugargol, 2020). Bidis are the modern version of old 18th century hookas as they overcome the obstacle of sharing among group and are portable with no requirements of assemblage and extensive preparation of lighting up. A

Ministry of Health and Family Welfare report recognises bidi rolling as an occupational health hazard (Gupta and Asma, 2008). WHO representative to India, Dr. Ofrin ,(2022) integrated high prevalence of diseases, with public health programmes and highlighted the needs of safe working conditions to reduce the exposure to nicotine dust absorbed through skin and nasopharyngeal route that endangers not only some bidi workers but also their infants and families. Reviews calculated by Tyagi et al (2023 ) revealed high risk of gynaecological disorders in pregnant and lactating mothers. Moses and Prabakaran (2011) measured several biological markers including urinary cotinine, urinary thioether levels related to toxicity.

The Committee of National Commission for Enterprises in the Unorganized sectors NCEUS(2009) has described bidi manufacturing as one of the prominent industry in unorganized sector without any employment and security benefits provided by the contractors. A region-wise database of bidi workers is maintained by the Ministry of Labour and Employment, Government of India (PIB,2019). The present study aims at surveys in 5 Urban slums of Jalandhar District of Punjab, India to find out morbidity in girl child and women labourers involved in bidi making at homes. In addition, the need of social security, shifting of workers to far off places from home, alternative employment opportunities through entrepreneurial development programmes for these home workers of unorganized sectors have been emphasized lest their families and whole communities in urban slums should suffer from the morbidities. The present work would be a significant step in conserving sustainable development of humankind.

## MATERIAL AND METHODS

Field surveys were conducted at bidi rolling sites and tendu leaf manufactures of unorganized sectors in urban slum areas of Bhogpur, Kartarpur, Maqsudan, Adampur Doaba and Rama Mandi of Jalandhar district of Punjab in India. Inclusion criteria involved all the female workers from their homes who were present and willing to participate in the study conducted from January 2022 to June 2023. Out of the entire slum population of 8200 of at these 5 study sites,125 working females were included who did not refuse to disclose the symptoms of ailments they were suffering. Thus the sample size was 125. A written informed consent was taken from each women prior to enrollment in the study. A pretested questionnaire was administered to them to collect data related to socio-demographic and health issues. Databases were developed in Census and Survey Processing System (CSPRO) and Microsoft Excel. After interviewing bidi rollers regarding ventilation, space, lighting and overcrowding, medical examinations of

each study subject was done. SPSS windows version 14.0 software was used to perform data entry and statistical analysis. Cartographic methodology (preparing maps) and statistical methodology (systematic sampling with the help of the questionnaire from the Census of India) was developed by incorporating the tools and techniques of measurement of different variables. Thus considering the feasibility factors descriptive, cross sectional and community based study was carried out and bidi rollers were identified by using snow balling sampling (Sabale et al., 2012).

**RESULTS AND DISCUSSION**

Table 1 depicts the age distribution of the study subjects. Around 22.4% girls had started bidi rolling at teenage. 4 of them had started at the premenstrual age of 11. Maximum percentage (25.6) noticed was of young married women of 20-30 years age who referred to stay at home due to pregnancy or had conceived a baby or were sufferer of miscarriage.

Table 1. Morbidity in Age distribution of study subjects

Age(in years)	Frequency	Percentage
10-20	28	22.4
20-30	32	25.6
30-40	22	17.6
40-50	15	12.0
50-60	18	14.4
60-70	10	8.0
Total	125	100.0

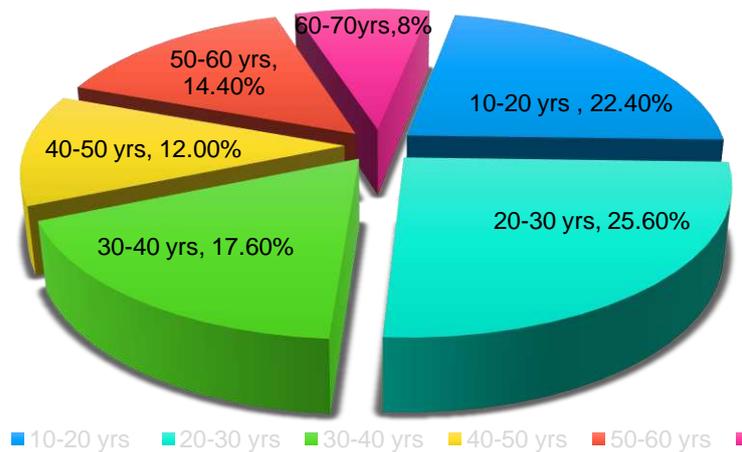


Figure 1: Distribution of female bidi workers according to age groups.

Table 2. Morbidity in the study subjects

Morbidity	Type	Frequency	Percentage
Gynaecological symptoms	Menstrual irregularities	56	44.8
	Leucorrhoea	37	29.6
	Excess vaginal discharge	22	17.6
	Miscarriages	12	9.6
	Uterine problems	20	16
	Childless workers	13	10.6
	Anaemia	38	30.4
	Premature menopause	15	12
	prolonged fatigueness	55	44
	Women with still born babies	9	7.2
	Gestational hypertension	53	42.4
	Lactating labourers with loss of appetite	11	8.8
	Infertility	4	3.2

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Disorders of new borns	Irritation	30	24
	Low birth weight	23	18.4
	Insomnia	20	16
	Tanning of skin	25	20
	Redness in eyes	8	6.4
	Premature babies	18	14.4
	Watering eyes	7	5.6
	Babies with bronchitis	20	16.0
	Neonatal jaundice	17	13.6
		14	11.2
	Genotoxicity	Higher amount of urine cotinine	6
Problem in women admitted in labour ward	High fetoplacental ratio (foetal hypoxia)	5	4.0
	Reduced foetal growth	13	10.4
Neurological diseases	Numbness of fingers	1	13.6
	Dizziness	48	38.4
	Vertigo	13	10.4
	Insomnia	49	39.2
	Loss of memory	5	4.0

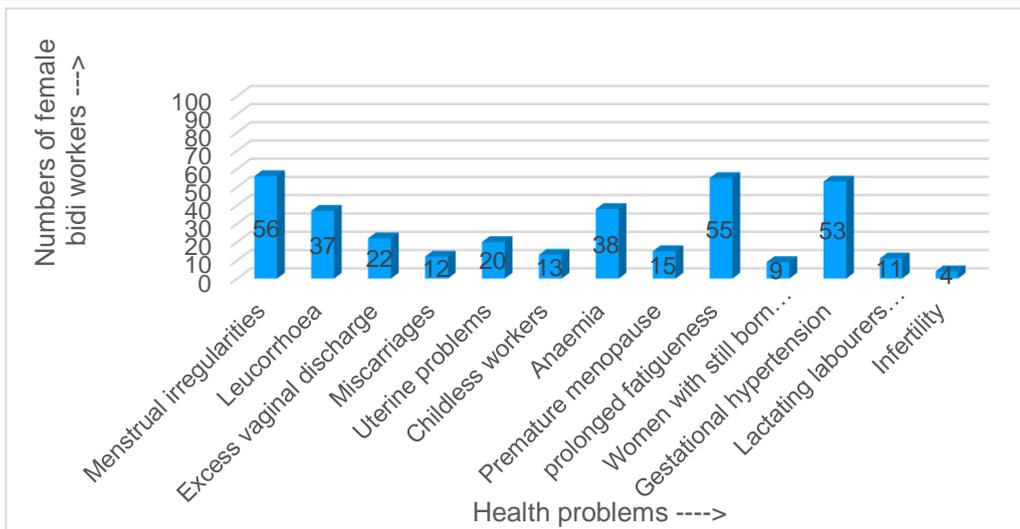


Figure 2: Health problems due to work in bidi rolling- Gynaecological symptoms

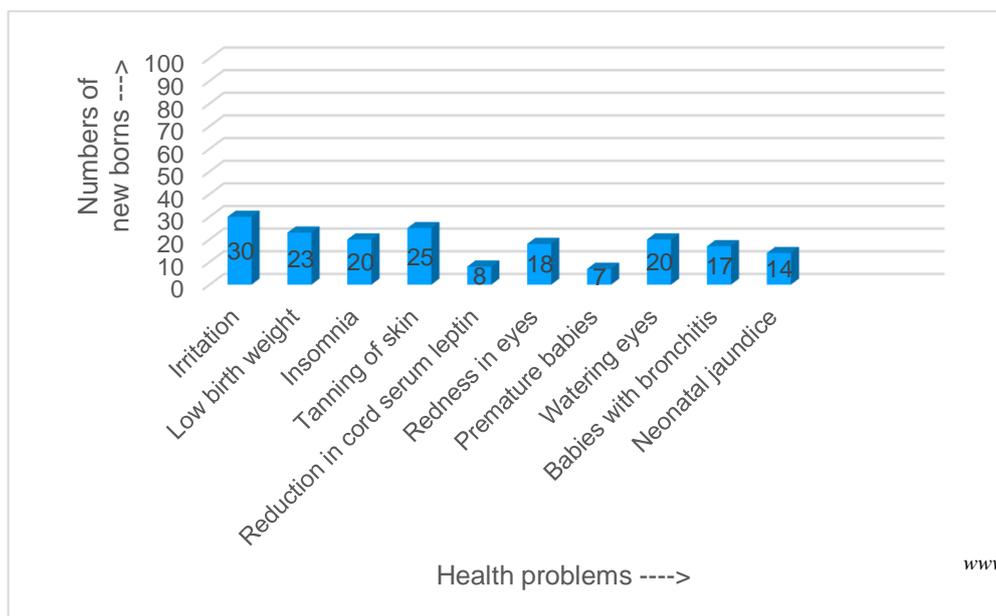


Figure 3: Health problems of new born babies (Neonatal problems)

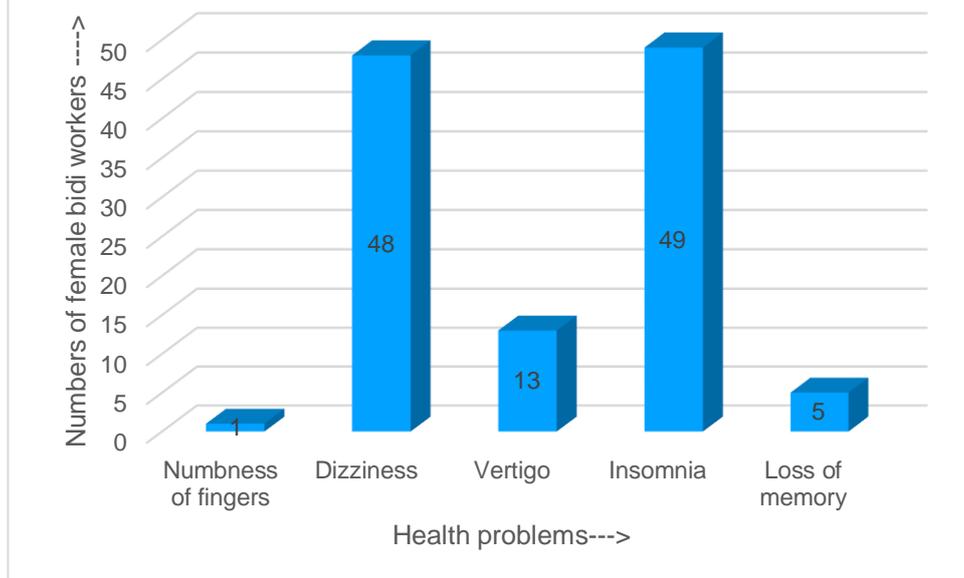


Figure 4: Health problems of female workers due to work in bidi rolling- Neurological diseases

Morbidity in female workers are shown in table 2. Most common morbidity was menstrual irregularities and prolonged fatigue followed by gestational hypertension. Out of 125 women, 23 had given birth to low birth weight babies, 15 had premature menopause and 4 were taking treatment for infertility. Maximum newborns had bronchitis and tanning of skin. Regarding past history, 8 women of age group 40-50 had numbness of fingers and vertigo. None of them were aware of safety measures like washing hands, covering eatables, keeping feeding newborns away from tobacco dust and wearing masks or gloves. The increasing population of girl child and females involved in home-based nature of the industry is matter of serious concern for sustainable development. Almost all urban slums workers have a single room being used for bidi rolling, cooking, sleeping, newborns and age old or sick workers. Results of various gynaecological, neonatal and neurological health disorders observed in present study are in cognisance with those of Tyagi et al (2023). We strongly recommend the shifting of bidi making sites far from homes and strengthening awareness of Occupational Safety, Health and Working conditions Code 2020 of India. Female workers of this unorganized sector must be made aware of the Bidi Workers Welfare Fund Act, 1976 aimed at promoting financial assistance, free housing and health establishment of Bidi Workers Welfare Cess and scholarships to the children (Dube, 2013). In light of evidence of these occupational health hazards reviewing the OSH Code 2020, linking poor slum workers to Mahatma Gandhi National Rural Employment Guarantee Act 2005, developing policies to strengthen India's commitment to Articles 17 & 18 of WHO FCTC, awareness to alternative occupations by compaining skill development programmes under Pradhan Mantri Kaushal Vikas Yojana (2016-2020) have been suggested. Child Labour Law Amendment Acts should be strictly implemented otherwise women bidi workers would continue to struggle for survival despite low wages, steady exploitation by contractors, lack of medical and education facilities and negligence in government policies. To mitigate the detrimental effects of bidi rolling covering them by formal protection acts like Rashtriya Swasthya Bima Yojna (RSBY) including better wages is the need of hour.

## CONCLUSION

Bidi, a cheap form of tobacco consumption, poses high health risks to young teenage girls and women workers engaged in bidi rolling at their homes in Urban Slums of Punjab, India. In the present research, 125 female labourers were investigated for the morbidity of various gynaecological, neurological and neonatal disorders out of a total population of 8200 using snow balling sampling, cartographic and statistical methodology over a period of one and a half year. Menstrual irregularities with prolonged fatigue followed by gestational hypertension and still births were the most common morbidity. Female workers of low socio-economic status and poor working conditions at home should be involved in awareness programmes to get them enrolled for the database maintained by the Ministry of Labour and Employment, Government of India. Shifting of work places far from their homes is one of recommendations suggested on the basis of present study to mitigate the detrimental effects for sustainable development.

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