

Socio-economic status, alternative livelihood and occupational health hazards among the Bidi workers in Tangail district of Bangladesh

Farhana Salim¹, Meherunnessa Begum², Shabnam Imam³, Tanim Sharmin⁴

ABSTRACT

Aim

This was a descriptive cross-sectional study with an aim to find out the socio-economic status, alternative livelihood and occupational health hazards among Bidi workers.

Methods

The study was done among 100 conveniently selected current Bidi workers (male and female) using a pretested semi-structured questionnaire.

Result

Most of the participants (52%) were in the category of 41-46 years of age, female (51%) by gender, married (83%), and had no institutional education (63%). Majority of them (42%) earned ≤ 5,000 taka per month only by bidi making. Moreover, majority of them (90%) prefer to work at their home because of convenience. Twenty one percent of worker's children below 18 years, found to be involved in Bidi making. Majority of the participants were dissatisfied with their job, and this is due to low wage and harmful effects on health. Most of the workers had been suffering from different health hazards. Eighty percent were suffering from chronic cough, 32% from gastric pain, 37% from contact dermatitis and 20% from backache. Other health issues like dizziness, chest pain, high blood pressure and irregular menstruation were also present.

Conclusion

In this context, it is anticipated that the recommendation towards developing alternative livelihood option will help to tackle the appalling condition of the workers.

Keywords

Alternative livelihood; Bidi rolling; Bidi workers; Occupational safety.

INTRODUCTION

The adverse health impact of tobacco has been universally accepted. Working at a tobacco industry can also exert hazardous effect on health. Bidi is a hand-rolled tobacco product that is inexpensive¹, less-processed, but more harmful^{2,3}, and it is smoked widely in Bangladesh and other countries in South Asia⁴. Bidi making is a labor-intensive process, most of which is unorganized and is done from home of bidi workers. They are exposed to harmful substances like nicotine, tar, dust and other particles² (through cutaneous and nasopharyngeal route), thus potentially leading to occupational health hazards. Bangladesh recorded a remarkable reduction in adult smoking prevalence from 23% in 2009 to 18% in 2017⁵. Prevalence of bidi smoking decreased to less than half from 11.2%

1. Dr. Farhana Salim, Associate Professor, Community Medicine & Public Health Department, Shaheed Monsur Ali Medical College. E-mail: farhanasalim@yahoo.com
2. Dr. Meherunnessa Begum, Associate Professor, Community Medicine & Public Health Department, Ibn Sina Medical College.
3. Dr. Shabnam Imam, Associate Professor, Community Medicine & Public Health Department, Bangladesh Medical College.
4. Dr. Tanim Sharmin, Associate Professor, Community Medicine & Public Health Department, Green Life Medical College.

Correspondence

Dr. Farhana Salim, Associate Professor, Community Medicine & Public Health Department, Shaheed Monsur Ali Medical College. E-mail: farhanasalim@yahoo.com

in 2009 to 5.0% in 2017⁵.

During the process of making Bidi, the workers are inevitably exposed to tobacco powder through their bare skin and respiratory tracts. Cutaneous exposure to tobacco could impair wound healing and this kind of environmental exposure to tobacco smoking increases the risk of genotoxicity⁷. Moreover, not only tobacco exposure but also child labor can be harmful to children's health. Despite of the fact that Bangladesh upholds the worldwide consensus of eradicating child labor and ensuring education for all children, still a substantial percent of children is engaged in child labor and in Bidi factories⁸. In a developing country like Bangladesh, children who experience poverty succumb to the demands of the Bidi industry and work for cheap labor even if their health, future wealth, and fundamental rights are compromised.

Bidi workers are considered as one of the integral parts of our national tobacco control policy. Their socio-economic status, livelihood, health condition, working environment with occupational safety measures, and child labor issues are important for policy advocacy. However, there is a glaring dearth of literature regarding these issues as an evidence-based information. Thus, we set the aim of this study to explore the socio-economic status, livelihood, health condition, working environment with occupational safety measures, and child labor condition of Bidi factories of Tangail district of Bangladesh. It is believed that findings of the current study will be helpful for Bangladeshi policymakers in formulating strong measures along with revising or redrawing the existing policies to discourage establish new Bidi factories and think about alternative livelihood for the factory workers.

MATERIALS AND METHODS

Type of study: It was a cross-sectional descriptive study.

Study place or area: Data had been collected from two villages (Baduria and Suruj) of Tangail district. The study areas were selected purposively, which have some of the highest concentration of Bidi factories in perspective of Bangladesh.

Study population: A total of 100 conveniently selected current Bidi workers were interviewed from two purposively selected villages. These included men, women and children working in 20 different bidi factories.

Inclusion criteria of the respondents were: Workers working in a bidi factory for at least one year.

Sample size and Sampling technique: A total of 100 bidi workers from 20 factories in two villages were selected purposively.

Data collection instrument: A structured pretested questionnaire was used in this study as research instrument.

Data collection procedure: Data were collected by direct interviewing of the bidi workers according to the prepared structured questionnaire.

Data processing and analysis: The data were analyzed by preparing master sheet with the help of computer. Appropriate tables were prepared according to the findings, which were relevant to the study objectives. Finally, data interpretation was done.

Ethical clearance: Ethical clearance was obtained from the local authority before the study and the respondents gave their verbal consent before taking part in this study. Participation was morally on voluntary basis.

RESULTS

A total of 100 conveniently selected current Bidi workers were interviewed from two purposively selected villages.

Table 1: Socio-demographic characteristics of the participants (n=100)

Variables Name	Frequency (n=100)	Percentage (%)
Age Group		
20-40	18	18%
41-60	52	52%
61-80	30	30%
Mean Age (Min-Max)	52 (25-75)	
Gender		
Male	49	49%
Female	51	51%
Marital Status		
Married	83	83%
Unmarried	2	2%
Divorced	1	1%
Widowed	14	14%
Number of family members		

Variables Name	Frequency (n=100)	Percentage (%)
2	26	26%
3	18	18%
4	24	24%
4+	32	32%
Average (Min-Max)	3.66 (1 – 7)	
Educational Qualifications		
No institutional education	63	63%
Primary (Class I-V)	26	26%
High School (Class VI-VIII)	11	11%
Monthly family income		
≤ 5000	24	24%
5001-10000	34	34%
≥ 10001	42	42%

This table shows the socio-demographic characteristics of the participants. Mean age of the participants was 52 years. Among study participants, 51% were female. Majority of the participants (83%) were married and 14% of them were widowed. The average of number of family members was 3.66, while 32% had more than four members. Furthermore, majority of the participants (63%) had no institutional education while only 26% completed their primary education. There was no bidi worker found who completed secondary school education. In terms of the participant's average monthly income 42% reported that their monthly income is ≥ 10001 BDT.

Table 2: Main source of income of the participants by gender (n=100)

Variables Name	Male	Female
Main source of income		
Bidi making work	24 (32.9)	49 (67.1)
Agriculture work	9 (100)	0 (0)
Small Business	1 (50)	1 (50)
Non-government Job	1 (100)	0 (0)
Day laborer	8 (100)	0 (0)
Others	6 (85.7)	1 (14.3)

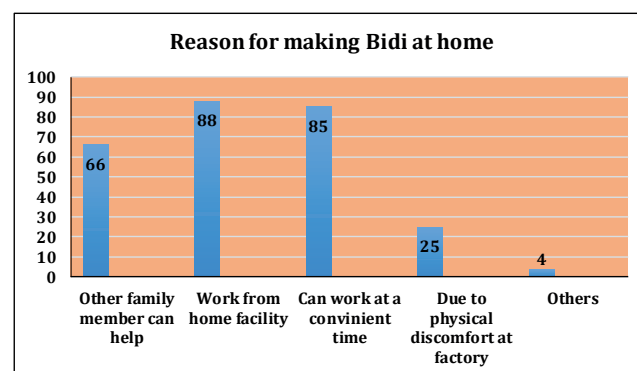
In this table, main source of income of the participants were analyzed by gender. Bidi making was found as main source of income among the female (67%) over male (33%). Only the males are involved in agricultural work, non-government job and as day laborer.

Table 3: Working station and duration of work in the current factory

Name of the variable	Frequency (n=100)	Percentage (%)
Working station		
Home	90	90%
Factory	10	10%
Duration of work in the current factory		
≤ 5 years	50	50%
5- 20 years	19	19%
> 20 years	31	31%

This table shows that, majority of the participants (90%) prefer to work at their home, whereas only 10% of them make Bidi inside the factories. In terms of duration of work in the current factory, half (50%) of the workers had been for ≤ 5 years in the current factory whereas 31% of them work for > 20 years.

Table 4: Reason for doing Bidi work at home



This table shows that 88% of the participants worked from home facility. It is also reported by the 85% participants that they can work at their convenient time. Other main reasons were to get help from other family members (66%) and physical discomfort at the factory (25%).

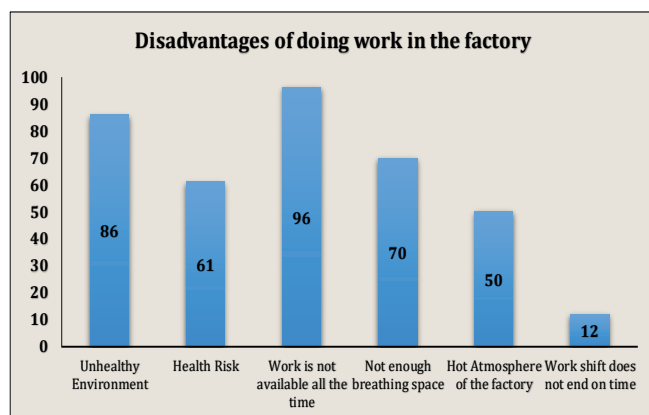
Table 5: Child labor and income related factors

Variables Name	Frequency	Percentage
Have children age below 18 years (n=100)		
Yes	68	68%
No	32	32%
Child labor in Bidi making (n=000)		

Variables Name	Frequency	Percentage
Involved	14	21%
Not involved	54	79%
Child working duration (per day)		
4 hours	7	50%
3 hours	1	07%
2 hours	1	07%
1 hours	5	36%
Wages of workers	Mean	
Bidi worker's income per month (By Bidi making)	3,108tk	
Number of Bidi making per day	2,225	
Wage of Bidi making per thousand	46tk	

In this survey, participant's children's age and their involvement in Bidi-making works were asked. Majority of the participants (68%) had children below 18 years of age. Findings revealed that 21% of the children's who are below 18 years of age are involved in Bidi making. We also analyzed the child labor's working durations per day and found that 50% of them work 4 hours per day and 36% work 1 hour per day. It is also reported by the participants that their wage for per thousand Bidi making is only 46 BDT. It was also found that their average monthly income by Bidi making is 3,108 BDT and the average number of Bidi they make per days is 2,225.

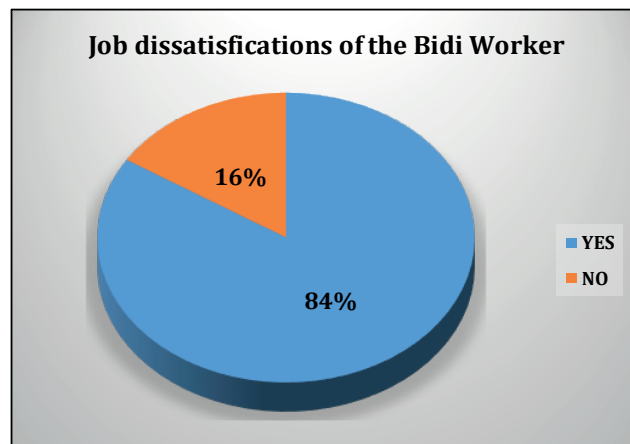
Table 6: Disadvantages of doing work in the factory



Workers' self-reported multi-response disadvantages of working in a factory were also stated. Works were unavailable at all times was reported by 96% of the

participants. Other reasons were unhealthy environment in factories (86%) and not enough breathing spaces inside the factories (70%).

Table 7: Job satisfaction of the Bidi worker



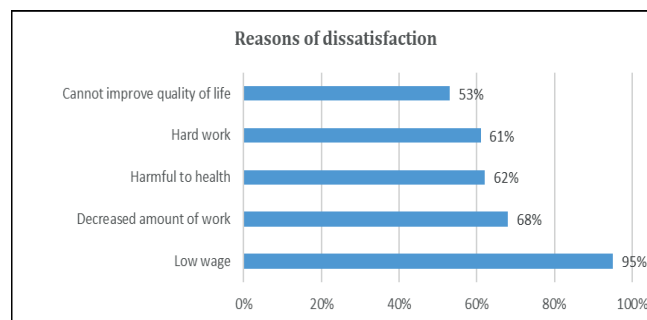
This table shows dissatisfaction with work in majority of the participants (84%).

Table 8: Willing to change occupation

Variables Name	Frequency	Percentage
Willing to change occupation		
Yes	90	90%
No	10	10%

This table shows most of the participants are willing to change occupation if appropriate training provided.

Table 9: Reasons for job dissatisfaction

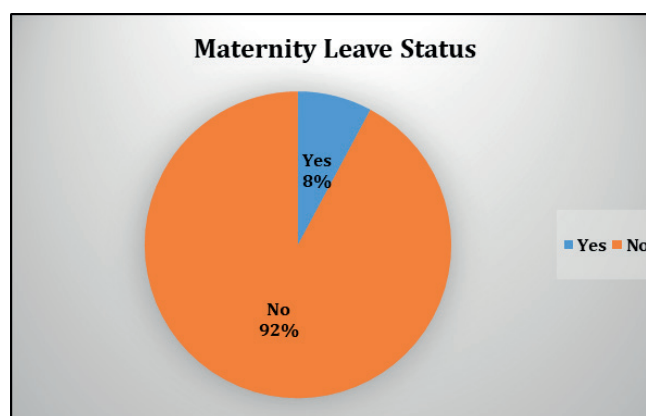


The reasons were also recorded for the job dissatisfaction by another multiple response analysis and finding are shown in this table. The main reasons for dissatisfaction were low wages (95%), decreased amount of work availability (68%), harmful effect on health (62%), hard work (61%) and inability to improve quality of life (53%).

Table 10: Work related factors

Variables Name	Frequency	Percentage
Work durations		
01-10 years	12	12%
11-20 years	12	12%
21-30 years	21	21%
More than 30 years	55	55%
No Weekly Holiday	100	100%
Holiday Facilities		
Yes	02	02%
No	98	98%
Festival bonus		
Yes	96	96%
No	04	04%
Health Compensations		
Yes	02	02%
No	98	98%
Personal protective equipment during COVID-19 Pandemic		
Yes	90	90%
No	10	10%
Types of protective equipment (n=90)		
Only Mask	72	80%
Mask and Hand Sanitizer	18	20%
Performance bonus		
Yes	01	01%
No	99	99%

This table shows majority of the participants (55%) worked for more than 30 years in Bidi factories. All the participants reported that they don't enjoy weekly holiday, whereas (98%) did not enjoy any government holiday facilities. In term of festival bonus, 96% of workers received festival bonus. Almost all (98%) participants reported they did not get any health compensation from bidi factory. Since the study conducted during Covid-19 pandemic period, findings reveal that majority of the participants (90%) received personal protective equipment from the factory owners. It is also reported that 80% of the participants received only a mask and 20% got both hand sanitizer and mask. In term of performance bonus only 1 out of the 100 workers got bonus from the Bidi factory.

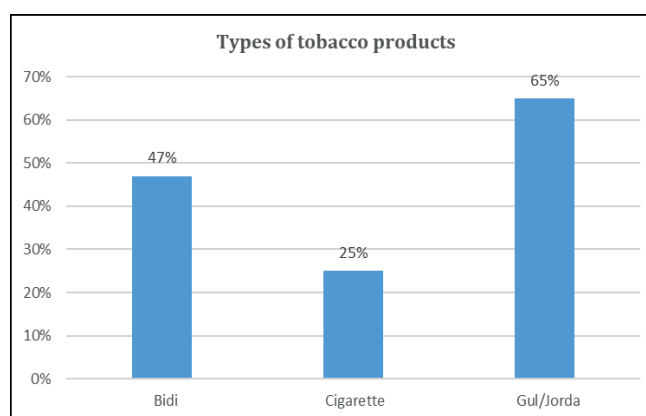
Table 11: Maternity leave for female Biri workers

This figure represents the maternity leave status of female participants. Only 4 (8%) out of 51 female participant enjoyed maternity leave during their pregnancy.

Table 12: Tobacco uses by gender

Variables Name	Male n (Row %)	Female n (Row %)
Tobacco use		
Yes	35 (57.4)	26 (42.6)
No	14 (35.9)	25 (64.1)

This table describes the tobacco use by gender among the Bidi workers. Among the tobacco consumer's, males (57%) were found to be more consumers than females (43%).

Table 13: Types of tobacco products consumed

We conducted multiple response analysis to see the tobacco consumption pattern among the workers and found that gul/Jorda is the main tobacco product (65%) followed by bidi (47%) and cigarette (25%).

Table 14: Health hazards due to tobacco exposure

Variables	Frequency	Percentage
Types of health hazard* (n=100)		
Chronic Cough (more than 6 months)	80	80%
Gastric pain	32	32%
Dizziness	12	12%
Chest Pain	23	23%
Backache	20	20%
Skin problems like contact dermatitis	37	37%
High Blood pressure	20	20%
Menstrual irregularities in female workers	10	10%
Amount of health expenditure in past 12 months		
No Expense	97	97%
100-1000	2	2%
Above 1000	1	1%

We explored the common health hazards experienced by the participants and found that majority of them (80.5%) suffered from chronic cough, 32% experienced gastric problems. Twenty three percent suffered from chest pain. 20% had backache and 37% had skin problems like contact dermatitis. Twenty percent had complaints of high blood pressure and 10% of female workers complained of menstrual irregularities. This survey also reveals that almost all of the participants (97%) had no expenditure for health problems over the past 12 months and who paid for it, was an insignificant amount.

DISCUSSION

Bidi is a hand-rolled tobacco product that is inexpensive, less-processed, but more harmful and it is smoked widely particularly by the poor population in Bangladesh. The total full-time equivalent employment in the bidi industry was estimated at 46,916 with children excluded in 198 currently operated Bidi factories across the country⁵. In this context, it is important to explore

the socio-economic status, alternative livelihood and occupational health and safety condition of Bidi workers in Bangladesh.

Although bidi rolling began in the factory setting (in early 20th century), over the last three decades, bidi manufacturers have increasingly shifted bidi work from factories to households⁹. Currently, most of the bidi manufacturing is done through Own Account Manufacturing Enterprises run in private dwellings of bidi workers. Bidi workers are known to be underpaid, with their wages not increasing substantially even though profits of the bidi industry have increased.

In our recent study, most of the participants (52%) were in the category of 41-46 years of age, female (51%) by gender, married (83%), and had no institutional education (63%), there was no bidi worker found who completed secondary school education. Majority of them (64%) earned ≤ 5000 taka per month. Moreover, majority of them (90%) prefer to work at their home because of work from home facility and convenience. 43% of the workers work 3 days in a week. Twenty one percent of worker's children below 18 years, found to be involved in Bidi making.

In our current study, most male Bidi workers have other jobs, and it is apparent that Bidi making is their secondary or part-time employment. On the other hand, female Bidi workers have household works and some face societal difficulties in working outside the house. These findings indicate that most Bidi workers can live without Bidi labor. If there is a provision of training, 90% of the respondents are interested in making the shift to an alternative livelihood. Similar finding was found in a study by Supase AS et al¹⁰.

Alternative employment/jobs in this region may persuade Bidi employees to change careers. However, the government program can assist Bidi workers with their job shifts. Nearly all the respondents know that all other Bidi workers are making 46 BDT after processing 1,000 Bidis (adding glue, packing, and putting tobacco into Bidi rolls). According to Bidi workers, one Bidi worker earns 16 BDT for rolling a thousand Bidis. They can make a total of 62 BDT for producing 1,000 Bidis. They informed, Bidi employees or laborers getting the lowest wages in the country.

Findings revealed that 21% of the children's who are below 18 years of age are involved in Bidi making. We also analyzed the child labor's working durations per

day and found that 50% of them work 4 hours per day and 36% work 1 hour per day. One survey revealed 8 out of 10 children felt unwell during work⁸.

During the process of making Bidi, the workers are inevitably exposed to tobacco powder through their bare skin and respiratory tracts. Cutaneous exposure to tobacco could impair wound healing and this kind of environmental exposure to tobacco smoking increases the risk of different health hazards including genotoxicity⁷.

Our study reports evidence on health hazards in bidi workers and their families, showing very high prevalence of respiratory (up to 80%), musculoskeletal (up to 20%), gastrointestinal (up to 32%), neurological (up to 12%), skin (up to 37%) and other conditions across the organ system.

Bidi workers reported dizziness, chest pain, and pain in the hands, legs, shoulders, neck and back due to prolonged working hours in the same posture for bidi rolling. Some women complained about menstrual irregularities. Through literature review we found many bidi workers in different studies had similar health problems including burning of eyes, respiratory irritation, chronic cough, and overall health deterioration because of prolonged tobacco dust inhalation^{11,12,13}.

CONCLUSION

Bidi workers earn significantly less than they should, undermining the value of their labor and causing them economic and social hardship. Long hours of work, unhealthy working conditions and a weak social protection mechanism compound the problem. However, in the absence of suitable alternatives and easy access to the bidi industry, they continue with this activity.

This study provides a strong justification for exploring alternative livelihood opportunities for the economic and health benefits of beedi workers. The findings related to income from bidi rolling and employment days generated could help design alternative livelihood opportunities for bidi workers. Along with health and socio-economic well-being, any attempt to design a suitable and sustainable alternative strategy should consider flexibility in working hours, capacity building and training, and duration of employment. Examples from other countries such as the Philippines and Turkey, where increased tobacco taxes have been utilized to create alternative livelihoods (WHO 2015) provide insights on how government resources and revenues can be used for livelihood modification. The government should also protect the transition to alternative livelihoods from interference by the tobacco industry. Government bodies and civil society should engage in dialogue on alternative livelihoods, establish networks with experts in relevant areas, protect projects on alternative livelihoods from the influence of the tobacco industry, and explicitly allocate funds for generating alternative livelihoods.

Conflict of interest: The authors declare that they have no conflict of interest.

Author's contributions:

Idea owner of the study: Salim F

Study design: Salim F, Begum M

Data gathering: Salim F

Writing and submitting manuscript: Salim F, Begum M, Imam S, Sharmin T

Editing and approval of the final draft: Salim F, Begum M

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