

Livelihood and Status of Tobacco Processing Workers: Insights from Selected States in India

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Processing is one of the prime activities in tobacco production and is a labour-intensive activity in India. It involves processes starting from cleaning raw tobacco leaves to crushing them into different sizes/particles or making fine dust in accordance with the requirements of the industries producing bidi, cigarette, zarda, mouth freshener, pan masala, khaini, snuff, and chewing tobacco. There is also a lack of information on the number of processing workers, their livelihood, and, the health hazards of working in tobacco processing units in India. This paper discusses the working conditions and livelihoods of tobacco processing workers and their health status. The study followed snowball sampling to identify a sample of 500 processing workers spread out in the states of Andhra Pradesh, Gujarat, Karnataka, Maharashtra, and West Bengal. The poor working conditions, lack of social security benefits, low standard of living among a majority of workers, reporting of chronic illness among processing workers, absence of scientific studies on the health conditions of workers, and a majority of processing workers not being happy with their employment are the reasons enough for policy intervention to look into their working conditions and find out ways and means to rehabilitate them in other occupations and wean away the new entrants into tobacco processing job market. There is a need for scientific studies based on a large sample of processing workers capturing both clinically diagnosed and self-reported health symptoms for validating the linkage between exposure to tobacco dust and health problems among workers.

Keywords: Tobacco, Processing, Livelihood, Workers

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The final product of tobacco before reaching the consumer involves activities ranging from farming, harvesting, curing, processing, grading, packaging, marketing, manufacturing, distribution, and retailing. Processing is one of the prime activities in tobacco production and is a labour-intensive activity in India. It involves processes starting from cleaning raw tobacco leaves to crushing them into different sizes or fine dust. The crushed leaves differ in size and substance in accordance with the requirements of the industries producing bidi, cigarette, zarda, mouth freshener, pan masala, khaini, snuff, and chewing tobacco. In total it involves processes transforming leaves into powder.

Women are largely involved in processing activities. Tobacco processing is carried out mainly in Karnataka, Gujarat, Andhra Pradesh, West Bengal, and Maharashtra. These are the states, which cultivate different varieties of tobacco.

There is a dearth of information on tobacco processing in India as it is largely in the unorganized sector. Taking into account the production estimates for the entire bidi and chewing tobacco in the country (around 60% of 750 million kg of raw tobacco produced annually in the country), the number of workers involved in the tobacco processing industry in India can be roughly estimated to be less than one lakh workers (Nayak, 2018). There is also a lack of information on the livelihood and health hazards of the workers in tobacco processing in India. While the hazards of habitual tobacco usage are well established, very little information is available about the effects of occupational tobacco exposure, particularly the processing of raw tobacco. The research on tobacco processing workers is a grey area. Although many attempts have been made to look into the life and working conditions of bidi rollers who are engaged in making a final tobacco product, very little information is available on processing workers who deal mainly with raw tobacco used for making tobacco products.

Studies indicate that the workers in tobacco processing industries are exposed to dust and work under unhygienic conditions without using masks and gloves and, many of them being unregistered workers without identity cards (IDs) (Mahurkar, 1990; Rudrama & Naik, 2012; Sabale et al., 2012; Khanna et al., 2013; Kaup et al., 2017; Bhalshankar & Ugle, 2020). Mahurkar (1990) reported that in many cases filed against the owners of 'Kharis' (in Gujarat processing units are known as 'Kharis'), the workers could not win as their names were not entered in the register of the unit either because they were minor or were taken on a temporary basis. It was also noted that there was no proper ventilation in the processing units. Although most of the units are registered, there was neither inspection of the working conditions nor scrutiny of the application of the labour laws in these workplaces. Bagwe & Bhisey (1993) report that although the prosperity brought by cultivation and processing of tobacco was visible by the material assets owned by the processors in the Kheda district of central Gujarat, it did not trickle down to poor workers who toiled for

hours to shower prosperity to their owners. And there are no scientific reports found off late on their improved conditions in the 'Kharis'.

A pioneering study on occupational health problems of tobacco processing workers in India carried out by Ghosh et al. (1985) revealed self-reported symptoms of vomiting, giddiness, and headache during and after processing work among 69% of workers. These workers had higher rates of nicotine and cotinine in urine excretion. Similarly, a study by Bagwe & Bhisey (1993) revealed cotinine levels in the saliva of 19% bidi workers and 100% of tobacco processing plant workers not in the habit of tobacco consumption. Mahimkar & Bhisey (1995) monitored workers engaged in the processing of bidi tobacco in India using peripheral blood lymphocytes as the test system and found increased chromosomal aberrations in tobacco processing workers compared to those in the control group, which indicates genotoxicity among tobacco processors. Bhalshankar & Ugle (2020) study found a relationship between tobacco dust exposure and changes in total thiol status. A significant decrease in levels of total thiol was found in all groups of bidi workers as compared to those in the control group. Singi & Hallikeri (2023) studied 825 tobacco processing workers in tobacco factories of Nippani city in Belagavi district of Karnataka to examine the health status of the workers. The results reveal that around 40% reported back pain caused due to being in uncomfortable posture for a prolonged time, 37% reported hand/arm fatigue 19% reported headaches, 17% reported breathing problems, 14% had vision problems and 12% reported issues with dental care. Nausea, skin diseases and palpitation were other problems reported by the workers. Despite these problems, 56% of the workers did not use protective measures like masks and gloves. In a limited study carried out by Patel et al. (2022) with fifty tobacco workers in factories of Kheda found that cough (84%), wheezing (48%), Rhinitis, back problems (40%), redness of eyes (64%), skin rashes (44%) and fever (62%) were the major health problems reported by workers.

Similar findings have emerged from studies conducted in the other countries too. The effects of occupational exposure to tobacco dust on the respiratory system of 1020 tobacco workers was attempted in Greece by Chloros et al. (2004). No significant association was found in chronic diseases in the lower respiratory systems and pollutants as against, a slightly higher reporting of disorders of upper respiratory systems in work sites compared to the participants in the control group. A study carried out by Rawan and Suzan (2023) in the city of Lattakia in Syria in a cigarette manufacturing factory revealed that more than 50% of the factory workers had respiratory problems, musculoskeletal and varicose veins problems in addition to physical and psychological fatigue and stress. However, the authors revealed that due to lack of use information on occupational hazards, there was a low reporting of occupational hazards due to environmental factors. However, it throws light on the health problems of the workers in selected factories of the district.

These studies provide useful information on the health status of tobacco workers. However, they do not explore how the conditions at the workplaces exacerbate the health hazards of the poor and unprotected workers. As we mentioned earlier, tobacco processing is largely an unorganised activity in India. It is carried out in isolated locations in closely supervised units that often accommodate the workers and their families within the premises. The current study attempts to understand the association between health problems experienced by processing workers and their conditions of living and working including access to social security benefits. It also investigates the skills these workers possess, their perceptions about the prospects of their children taking up such a hazardous activity, and the possibility of moving to other sources of livelihoods. The study aims to help policy in understanding the likelihood of future generation taking up this work, the skills required for entering alternative occupations, and the opportunities that exist for such alternatives. For the existing workers, the study identifies the gaps in availing social security benefits.

Research methodology

The study covers tobacco processing workers in Karnataka, Gujarat, Maharashtra, Andhra Pradesh (AP) and West Bengal (WB). Tobacco processing is found mainly in these five states in India.

• Sampling

The study adopted purposive sampling or snowball sampling methods chosen according to convenience in each of the selected states. Since the spread of the units and employment therein is not readily available, we choose to keep the sample to 100 tobacco processing workers in each state with a total sample of 500 tobacco processing workers. Since the number of processing workers in India is not recorded and their details are not known, we limited the sample to 100 per state. This is one of the limitations of the study. In all states actual sampling finally done was 512; 103 each in states of Andhra Pradesh, West Bengal, Gujarat, 102 in Maharashtra and 101 in Karnataka. This is because in all states 1–3 more samples have been collected by the respective teams.

It was initially decided to sample five processing units and 20 processing workers per unit selected randomly in each of the selected state for detailed interviews. However, in most of the states, we could not get entry into processing companies and the employers did not allow talking to workers. Therefore, we met workers in colonies and neighbourhoods where most of the them resided. The interviews were done at workers' homes in the morning (before going to work) and at night (after returning from work). The selected tobacco processing workers were interviewed in

Prakasam and Guntur districts of AP, Charotar region (Anand and Kheda districts) of Gujarat, Nippani tract of Belgaum district in Karnataka, Cooch Behar district in West Bengal and Sangli and Kolhapur districts in Maharashtra. These are the main centres of tobacco processing in the selected states. Given that the sample is collected through snowball method, for analysis we have used basic statistical tools and non-parametric tests for comparing groups.

The tobacco processing workers have been defined as those who are engaged in processing work for at least six months in a year and it's the major source of livelihood for the household. The tobacco processing units we visited are basically those units which process dry tobacco leaves from the farm into different grades of tobacco dust to be used in various chewing and smoking tobacco products.

Tobacco processing: Empirical findings

The tobacco processing worker was the respondent in the survey and answered most of the questions related to processing. The study covered workers of about 110 units across the five selected states – 10 in AP, 40 in Gujarat, 20 in Karnataka, 20 in Maharashtra and 20 in West Bengal. In Gujarat, tobacco processing units or kharis did not have names as the processing was done mainly in backyards of residences of owners of these tobacco processing units. Most of these houses and processing units are built in their farm lands which makes them ideal with required space for drying, processing and packaging the dried tobacco leaves.

• Socio-economic background and living/working conditions of the processing workers

A majority (53%) of the respondents available for discussion during the survey were female processing workers. In Gujarat, however, as high as 92% of the workers available for discussion were men. It may be noted that male migrant workers from AP constituted the largest chunk of processing workforce in Gujarat. Men formed more than half of the workers interviewed in AP and WB. In AP most of the workers were found to be intra-state migrants from the neighbouring districts. In WB, while the women mainly rolled the bidis, men do processing work.

And, 66% of the respondents in the sample were in the age group of 30 to 60 years. Around 9% of the sample processing workers were working even after the age of 60, most of them being in Karnataka and Maharashtra. In Gujarat, none of the workers were above the age of 60 possibly indicating that only able-bodied migrant workers are offered employment in the industry. Overall, 20% of the workers from the survey were widows or widowers. Nearly 81% of the sample workers were Hindus, 15% Muslims, and 4% Christians. More than half (56%) of them were illiterates with only 1% being graduates. A majority (60%) of the workers lived in

slums ranging from 17% in AP to 96% in Maharashtra. Most (73%) of the dwellings were owned by the workers, while 11% of the workers reported living in rented houses. The rest were staying in parental houses.

Liquefied Petroleum Gas (LPG) is available to 63% of households while 36% still use fuelwood as the main source and the remaining 1% use kerosene and cow dung for cooking purposes. The toilet facility is available to only 67% of the households. Others used community toilets or openly defecated.

Most of the workers belonged to weaker sections with 41% being SCs and STs. Around 37% belonged to OBCs and the remaining 28% were from the general category of the population. Around 27% were working as labour in the tobacco processing units for 10–25 years, while 17% were working for more than 25 years. While a majority started working in processing activity during the age of 25 to 50 years, around 3% had started working even after the age of 50. But it was deeply troubling to note that a few processing workers whom we interviewed, had started working as young children – even before attaining eight years of age (3%). Another 11% said that they had entered the workforce before they attained 16 years of age.

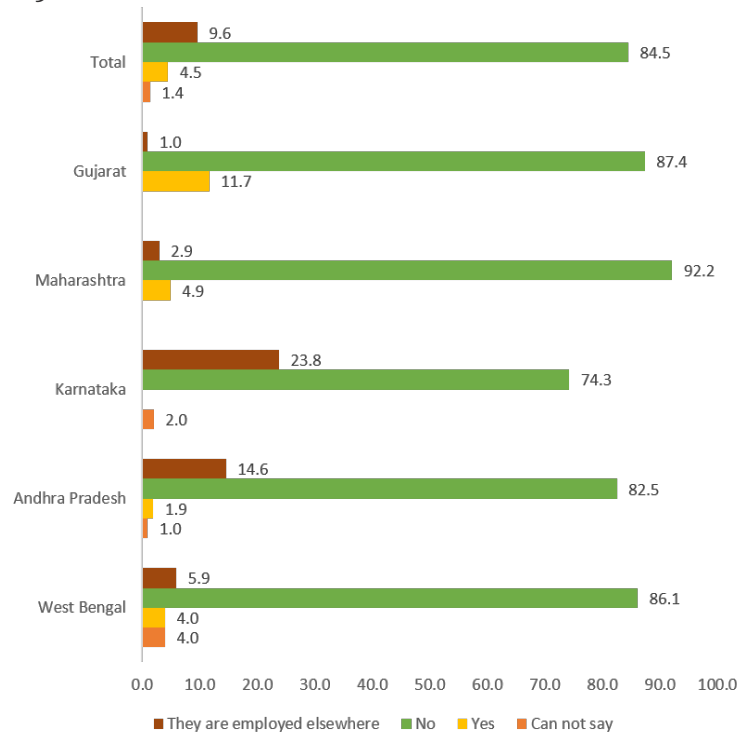
The responses of the sample processing workers on the choice of occupation reveal that processing is not a family occupation like bidi rolling, which is generally passed on inter-generationally, say, from the mother to her children, particularly, girls. Only 25% of the total sample of 512 processing workers' parents were involved in tobacco processing. Further, only in 23% of the sample households, we find other members were engaged in tobacco processing during the survey. Around 85% of the processing workers did not want their children to take up processing as their occupation (see Figure 1). And 10% of the sample processing workers reported that their children were already employed in other activities.

Only half of the processing workers are lucky to get the work throughout the year. Around 11% received work for less than three months. Around one-third of the workers in AP, WB and Maharashtra received work for more than nine months. On average around 60% of the workers work mostly 5–8 hours per day. In AP, 42% of the processing workers reported working for more than 8 hours per day.

Workers generally tie scarves or cloth on their faces to avoid dust, while a few work without it. The work is carried out from mid-October to January and from April to June. Tobacco processing is halted during monsoons to avoid dampness. As reported by the workers and the employer, the workers get a daily wage of Rs. 200 and benefits such as provident fund, pension and bonus. But these are available only to registered workers.

Most of the processing workers, except in WB, reported that their workplace had proper ventilation. Safety measures taken by processing units seem to be higher in AP as nearly half of the workers used gloves and 70% of the workers reported using

Figure 1: Distribution of Respondents by their Opinion on Children Taking Up Processing Work (%), N = 512



Source: Field Survey

masks. Usage of masks and gloves was observed to be the lowest in Gujarat. Only 18% and 31% of the workers used gloves and masks respectively while working. In 'Kharis' in Gujarat, none of the workers used gloves or masks. Most of the tasks like winnowing, grading, and packaging are carried out with bare hands in small premises surrounded by tobacco dust and residues. Nicotine observation through bare palms in the absence of gloves and exposure to dust without mask is likely to cause health problems to processing workers. It should be noted that the percentage of workers having IDs (28%), using masks (70%) and gloves (54%) is higher in AP. The working conditions seem to be better in AP as these men are involved in the processing of cigarette tobacco also. Mahurkar (1990) and Bagwe and Bhisey (1993) also indicate the harsh realities of the processing work wherein workers are denied of basic benefits and institutional recognition. Beyond these, it appears that there is no updated information regarding tobacco processing workers in the country.

Overall, only 10% of the workers possessed IDs. None of the workers in Gujarat and WB and, barely 8% of the processing workers in Maharashtra had IDs issued by the companies. This indicates the informal nature of tobacco processing wherein

workers must work at the mercy of the employer without demanding any social and economic benefits. One-fifth of the processing workers seem to be migrants. The share of migrants appears to be higher (48%) in Gujarat where it was reported that workers from Rajasthan are brought by companies specifically for processing work. A separate living arrangement is made for these workers who toil day and night within the premises of the units.

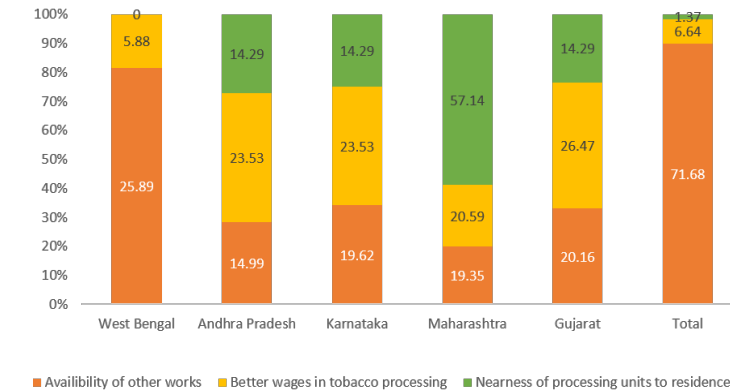
• **Sub occupations of the processing workers and Alternate employment opportunities**

Apart from processing work, workers are engaged in some other activities which are additional sources of earnings for them. The other sources of employment available to processing workers include Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA), reported by 3% households, agriculture labour reported by 11% households, non-agriculture labour reported by 8% households and self-employment reported by 2% households. Tobacco processing on an average gave 291 days of labour to the workers with lowest man-days of 206 in Karnataka and highest man-days of 351 days in Gujarat. This indicates that there is very little scope for processing workers to take up alternative jobs in Gujarat.

Although only 12% of the workers reported the availability of alternative employment opportunities in WB, 81% expressed their desire to shift from processing work if opportunities exist. More than half of the workers said that they were interested in shifting to alternate work in all the selected states except Karnataka (42%). In total, 56% of the workers wish to take up other works if such opportunities were available. Availability of alternate employment opportunities was reported by a higher percentage (38%) of workers in Karnataka. Overall, 30% of the workers think that alternate employment opportunities exist near their place of stay.

We tried to find the capabilities and skills of processing workers as it could help in understanding the scope for finding alternative employment opportunities available to workers in the region. Around 42% responded to the question on what employable skills they possess in addition to processing work. Of this, 56% revealed a single skill while the remaining reported possession of more than one skill. And the number of reported skills to the number of workers is in the ratio of 1:1.5 indicating that many possess additional skills. About a fourth of the workers reported being familiar with agricultural operations. This percentage corresponds with the proportion of workers who possess agricultural land (21%). Expertise in cooking was reported by 19% presumably due to the larger representation of women in the sample (53%). The other major skill reported by workers was livestock rearing (13%). As the processing workers are from rural background and agricultural families, they are aware of livestock rearing. Around 7% possess the skill of tailoring and embroidery,

Figure 2: Distribution of Workers According to the Reasons for Continuing Work in Tobacco Processing Despite Knowing that it is Harmful (%), N= 512



Source: Field Survey

2% knew bidi rolling and, less than 1% reported possessing knowledge of account keeping and computer operations, which are essential for getting employment in the current digitalized economy. Most of the business activities require the latter two skills. And, fetching sustained alternate jobs based on the skills of cooking, agriculture and livestock rearing is very difficult in rural and non-commercial areas as these are basics to many households and most of them carry out these activities for their households. They are less employable skills

• Health awareness

In response to the question how do they rate their health, only 41% of the processing workers said that they perceive their health to be good, while 45% said not so good and 14% rated their health as poor.

As reported from the field, while a majority (78%) of the processing workers knows that tobacco dust is harmful, 15% did not agree with it and 7% did not know whether it is harmful or not. But, 89.95% of the workers who felt tobacco dust was harmful across the selected five states have continued to work in the processing sector because no other work was available to them (see Fig 2). The availability of better wages is another major reason cited by 8.33% of the workers for continuing the processing work despite knowing about its adverse effects on the health of the workers.

The extant studies support the observation of high incidence of chronic illness among tobacco workers. Respiratory issues from continued inhaling of tobacco dust

and other particles, musculoskeletal disorders from prolonged awkward postures, eye/ skin irritation, headaches, and dizziness were reported in many studies. Table 1 presents the distribution of workers in the sample according to self-reported chronic illnesses. The presence of long-term illness (such as asthma, body pain, chest pain and cough, headache, acidity and gastric problems) is reported by 42% of the workers in the sample (Table 1). Self-reported illness during the reference

Table 1: Distribution of Workers According to Self-Reporting of Chronic Illness (%), N=512

States	Yes	No
West Bengal	68.93	31.07
Andhra Pradesh	80.58	19.42
Karnataka	33.63	66.37
Maharashtra	26.47	73.53
Gujarat	0.97	99.03
Total	216	296
	(42.19)	(57.81)

Source: Field Survey

period of past 30 days was noted among 44% of the workers. Recent studies by Singi and Hallikeri (2023) and Patel et al. (2022) respectively in Karnataka and Gujarat also have found widespread reporting of illnesses among the processing workers.

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• Wages and Social Security Benefits

Processing workers are paid in different modes – piece rates, daily wages, and monthly salaries. The wage rate for tobacco processing was found to be very low being Rs 6–7 per kg. The daily earnings varied between Rs. 150 in WB to Rs.227.49 in Karnataka (including employer's contribution towards EPF).

The owners of the processing units were worried by the labour regulations that require registered units to provide social security benefits like 10% Employee Provident Fund (EPF), 20% bonus, holidays on national festivals, gratuity, leave with wage, and minimum wages. Hence, they do not register all the employees.

They feel that it is better to close the units if all these norms are to be followed by them.

It was found that except for bonus payment, processing workers are mostly deprived of other benefits like EPF, Employee State Insurance (ESI) coverage, maternity benefits, payment of gratuity, workmen compensation in the case of death, housing facility, educational aid and group insurance. This is more so in WB where workers have not been allotted IDs. The workers in all the selected states reported receipt of bonuses though the percentage of workers receiving these benefits varies from 16% in WB to 97% in Maharashtra. Payment of bonus, however, depended on attendance. Some workers reported that their owners took them out for picnics every year at company expenses.

A few workers in AP reported the availability of many of these benefits. The payment of DA and housing facilities was reported only in Gujarat. EPF, a major social security benefit is available to only 48% of the workers in AP and 16% in Karnataka. Maternity benefit was reported by only one or two workers in AP and Gujarat. And ESI facility is reported only by 17% of the workers in AP. Around 2.5% of the workers had some kind of group insurance coverage (reported by 11% of the workers in AP and one worker in Gujarat). The payment of gratuity was reported by around 10% of the workers only in AP and Karnataka. Overall, the information available from five selected states reveals that workers in AP have most of the benefits although it is not uniform and not available to all. It could be mainly because at least 28% of the workers in AP have IDs, which means they are legally recognized.

• Annual Earnings of Tobacco Processing Workers

Tobacco processing is the main earning activity for the workers as shown in figure -3. The average annual income from tobacco processing per worker varied from a meagre amount of Rs.28,000 in Gujarat to Rs. 84,000 in AP. The earnings are higher in AP because 100% of the workers reported processing work to be available for the entire year and more than 40% reported working for more than 8 hours a day. In addition, the total sample workers in five selected states earned an average income of Rs. 15,000 annually from other activities the minimum being Rs. 7,000 in WB to a maximum of Rs. 31,000 in AP. Most (57%) of the workers take the payment weekly from their employers. Daily wagers include around 20% of the workers. Despite low wages, 27% of the workers reported some savings from their earnings.

The average income as well as median income from tobacco processing is found to be the highest in the state of Andhra Pradesh followed by West Bengal, Maharashtra, Karnataka and Gujarat in that order (Table 2). What is to be noted is the higher share of migrant workers in Gujarat. Wages in processing are the same to both male

and female in respective states and there is a great demand for processing workers as the younger generation is not inclined to processing work.

We attempted to compare the mean income of tobacco processing workers across the states if these are statistically significant or not. Kolmogorov-Smirnov (K-S) test was done to find out if the income from tobacco is normally distributed across the states and results show the statistical significance (P values) for respective K-S statistics are > 0.05 for West Bengal, Andhra Pradesh and Karnataka, indicating normal distribution but not for Maharashtra and Gujarat (< 0.05). The corresponding histograms also confirmed the same. Since we want to compare the income from tobacco processing for workers across the five states, we applied independent sample Kruskal-Wallis non-parametric test (K-W) to compare the median income for these states. It was found that the reported income from tobacco processing is statistically different across the states ($N = 512$, K-S statistic = 194.428, degree of freedom (df) = 4 and $p\text{-value} < 0.05$).

Out of 512 sample tobacco processing workers whom we interviewed, in total, 218 were males (42.6%) and rest 294 were female (57.4%). Despite women workers in our sample are largely involved in processing work and also work for longer duration in a given year than their male counterparts, we found on an average our sample male workers earn higher than female workers, Rs. 56743.6 (\pm Rs. 34045.7) and Rs. 44202.9 (\pm Rs. 25695.5), respectively. We applied statistical tests to determine if this difference in income from tobacco processing between male and female workers is statistically significant or not. Applying the Kolmogorov-Smirnov (K-S) test, we found the wage income from tobacco processing for our sample workers by gender was not normal.

Therefore, we have used Mann Whitney-U (MW-U) non-parametric test to compare the difference in income. It was found, the income from wage towards tobacco processing between male and female workers were different and this difference was statistically significant ($N = 512$, MW-U statistic = -3.310 and $p\text{-value} < 0.05$). All these tests were run using SPSS 16.0 and non-parametric tests were run applying auto-run option which employs appropriate model given the data. Further the data on bidi worker was collected through snowball sampling from willing processing workers in absence of a consolidated data base from which sample could have been drawn, so above non-parametric tests are apt tools to compare the group averages here.

Tobacco processing workers in addition to processing earn from their/family members' engagement as labour in MGNREGA, agriculture, bidi rolling, livestock rearing, rentals from buildings, casual labour, salaried employment and self-employment (Figure 3). The total household income of workers from several of the reported occupations including tobacco processing was reported to be on an average

Table 2: Average Annual Earnings from Tobacco Processing for Sample Workers (Rs.)

States	Mean Income (\pm S.D.)	Median Income	Number of Sample Farmers
West Bengal	54894.56 \pm 23324.41	54000.0	103
Andhra Pradesh	84320.39 \pm 37573.30	80000.0	103
Karnataka	40769.75 \pm 15423.94	40500.0	101
Maharashtra	47745.10 \pm 13519.26	49400.0	102
Gujarat	28213.59 \pm 18187.28	25000.0	103
Total	51236.10 \pm 29888.85	48000.0	512

Source: Field Survey

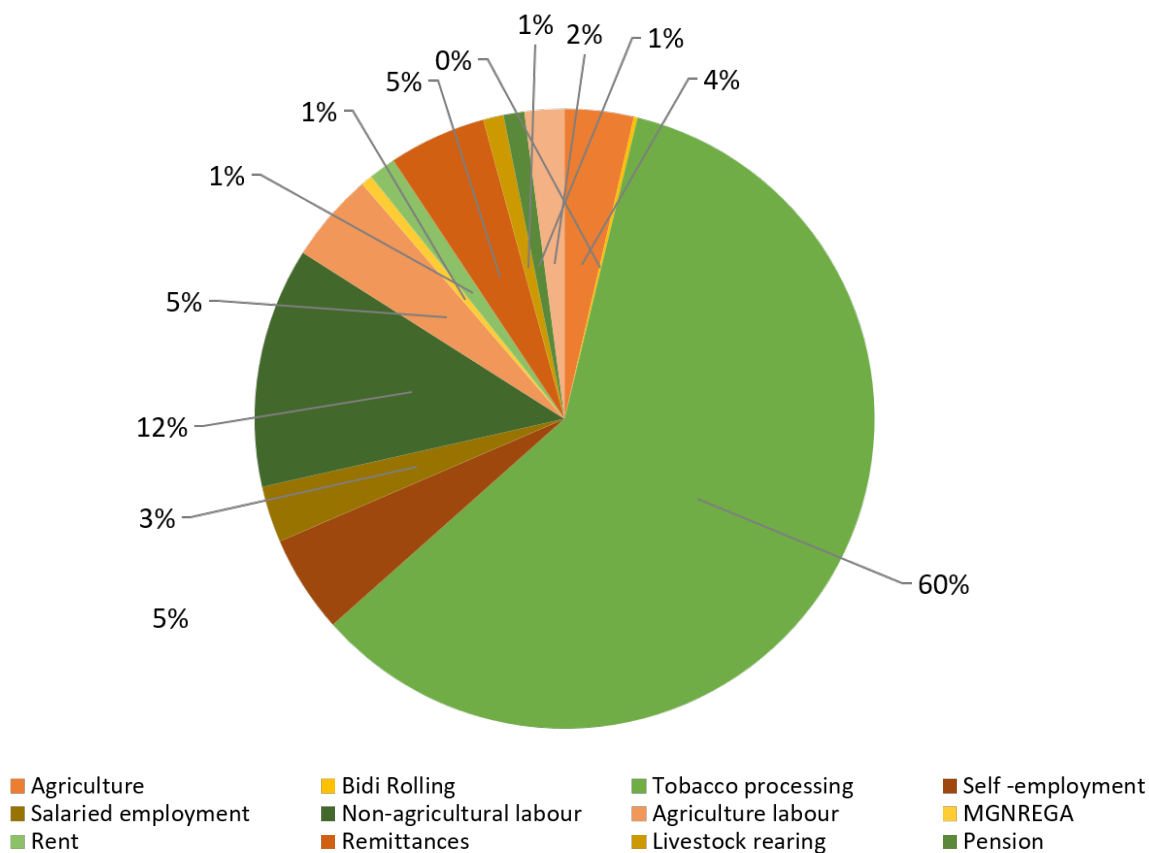
Rs. 44,482 per annum and was found to be the highest in AP (Rs. 53,938) and the lowest in Gujarat (Rs. 25,254).

Since the workers are engaged in tobacco processing on an average for 291 days, there is very little scope for processing workers to take up alternative jobs. As said earlier, only those who own agricultural land (around one-fourth) have an opportunity to work in their agriculture land and rear livestock, which is complimentary to agriculture. Although women tobacco processing workers we had interviewed in these five states reported having skills of tailoring, embroidery, cooking and computer, these are not reflected in to earnings as workers are engaged in processing and household chores.

• Are processing workers happy with their work?

Fifty-nine percent of the processing workers reported not being happy. Of those who were not happy, a third (31%) said that they were not happy because of the sole reason that tobacco dust was harmful and they had no option to stop this activity due to absence of alternate sources of employment. Around 16% said that the wages were meagre while 11% reported health problems as the reasons for their unhappiness. Apart from these reasons, 11% reported meagre wages as well as exposure to tobacco dust as reasons for unhappiness, while 17% reported tobacco dust and health problems, 2% reported meagre wages and health problems and 12% reported all three problems as reasons for unhappiness. It should be noted that as the study reveals, around 56% of the workers (Table 3) desired to shift from tobacco processing if there exists an opportunity. Despite the non-availability of alternative employment opportunities near their residence, around 79% of the workers are willing to shift from processing in WB. As against this, although more than half of the processing workers are not happy with their current work, a significant 44% are not interested in shifting. A majority being in the middle age and the non-availability of other opportunities to work near their location (the reporting of employment opportunities is lesser in states other than WB) are the reasons for their responses in this regard. Although only 30% of the workers reported availability

Figure 3: Different Sources of Income for Sample Tobacco Processing Workers Interviewed Across Five States (% share), N = 512



Source: Field Survey

Table 3: Tobacco Processing Workers According to their Interest to Shift to Alternative Employment (in %), N=512

States	Yes	No
West Bengal	78.64	21.36
Andhra Pradesh	55.88	44.12
Karnataka	42.00	58.00
Maharashtra	53.92	46.08
Gujarat	50.49	49.51
Total	56.19	43.81

Source: Field Survey

of alternate employment opportunities near their location, 56% are willing to shift to other works if support is available. So, in the absence of alternate employment opportunities, workers may not properly answer this questions.

It should be noted that the skilling programmes of the government with respect to the provision of alternate employment to tobacco workers is negligible considering the quantum of employment in the sector, and is currently limited to bidi rollers. Both the Labour Ministry and the NGOs have targeted their skilling programmes to bidi rollers. A majority of the tobacco processing workers in our sample, do not receive social security benefits like assistance for housing, minimum wages, EPF etc., as the study found that only 10% of the workers possessed ID cards.

Summary and Policy Recommendation

There is a dearth of information on tobacco processing in India as it is largely in the unorganized sector. There is no concrete information on the location of tobacco processing units, number of units, number of workers, type of tobacco processed, internal or domestic sale, exports, etc. Processing appears to be an activity restricted to locations near the tobacco cultivation area.

The review of the available literature indicates that exposure to tobacco dust causes some adverse health effects especially respiratory outcomes such as asthma, chronic obstructive bronchitis, and allergic respiratory or nasal diseases in workers. Tobacco processing workers had self-reported symptoms of vomiting, giddiness, and headache during and after processing work and, higher rate of nicotine and cotinine in urine excretion identified in clinical studies. Many of the workers, despite being involved in hazardous work, do not receive minimum worker benefits like EPF, gratuity, bonuses, medical allowances, and minimum wages.

There appears to be a reduction in the quantum of tobacco being processed in the last 10 years. It was reported that some units have been closed, while others have shifted from three shifts to one shift and some others have become seasonal. Availability of raw materials was a major concern to tobacco processors and they assume that could be due to a reduction in tobacco production area. Electricity supply was another major issue hitting tobacco processing. More than half (58%) of the workers in the sample felt that there was a reduction in tobacco processing activity over the years. Once booming with activities, some of the processing units now look like abandoned old castles in some of these locations visited by the survey team across five states. Workers say that anti-tobacco movement, prohibition on public smoking, restrictions on the sale and, introduction of Goods and Services Tax (GST) have cast a spell of doom on tobacco processing work. The fact that the production of tobacco remaining the same, the reported reduction in processing activity needs to be researched further for examining the real causes.

Processing is not a family occupation like bidi rolling, which is generally passed on by the mother to her children particularly the girl child. Most of the processing workers (86%) do not want their children to take up processing as their occupation. The wages for tobacco processing were found to be very low being Rs 6–7 per kg and varied between Rs. 150 in WB to Rs.227.49 per day in Karnataka. The poor working conditions, lack of social security benefits, low standard of living among a majority of workers, reporting of chronic illness among processing workers, absence of scientific studies on the health conditions of workers, and a majority of processing workers not being happy with their employment are the reasons enough for policy intervention to look into their working conditions and find out ways and means to rehabilitate them in other occupations and wean away the new entrants into tobacco processing job market.

A majority of the workers in the sample were poor slum dwellers holding BPL cards, and 20% of were widows or widowers. This highlights the vulnerable position of processing workers doomed to survive amidst the hazards of toxic dust inhalation and back-breaking hard work. Further, the fact that overall, only 10% of the workers possessed IDs indicates the informal nature of tobacco processing wherein workers must work at the mercy of the employer without demanding any social and economic benefits. Although it is a major livelihood option for processing workers who do not have access to any other alternative employment opportunity, it appears to be an exploitative work. The absence of social security benefits like housing and maternity benefits, and disparities in the availability of EPF, bonus, gratuity, etc. across the five selected states calls for bringing in uniformity in the provision of these basic social security measures to tobacco processing workers or skilling at least the younger generation who constitute around one-fourth of the processors' work force. This can enable shifting gradually from the hazardous tobacco processing.

This study should be viewed as a small step made to throw light on the living conditions and work environment of the tobacco processing in states employing a higher number of tobacco processing workers. Additional studies may be required to understand their health status in comparison to the general population using clinically diagnosed reporting and biomarkers to validate the linkage between exposure to tobacco dust and health problems among workers.

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References

Bagwe, A. N., & Bhisey, R. A. (1993). Occupational exposure to tobacco and resultant genotoxicity in bidi industry workers. *Mutation Research/Genetic Toxicology*, 299(2), 103–109.

Bhalshankar N. & Ugle S. (2020) A research on effects of tobacco dust on status of total thiol in bidi industry workers. *Int J Adv Med*.7(8):1269–1273 [<http://www.ijmedicine.com>].

Chloros D., Sichletidis L., Kyriazis G., Vlachogianni E., Kottakis I. & Kakoura M. (2004) Respiratory effects in workers processing dried tobacco leaves, *Allergologia et Immunopathologia*, 32(6): 344–351.

Devi, K. R., & Naik, J. K. (2012). An Epidemiological Survey of Occupationally Exposed Beedi Workers to Tobacco Dust. *Nature, Environment and Pollution Technology*, 11(1), 135–137.

Ghosh, S. K., Parikh, J. R., Gokani, V. N., Rao, N. M., & Doctor, P. B. (1985). Occupational health problems among tobacco processing workers: a preliminary study. *Archives of Environmental Health: An International Journal*, 40(6), 318–321.

Kaup, S., Naseer, A., Shivalli, S., & Arunachalam, C. (2017). Occupational exposure to unburnt tobacco and potential risk of toxic optic neuropathy: a cross-sectional study among beedi rollers in selected rural areas of coastal Karnataka, India. *PLoS One*, 12(11), e0188378.

Khanna, A., Gautam, D. S., Gokhale, M., & Jain, S. K. (2014). Tobacco dust induced genotoxicity as an occupational hazard in workers of bidi making cottage industry of central India. *Toxicology International*, 21(1), 18.

Mahimkar, M. B., & Bhisey, R. A. (1995). Occupational exposure to bidi tobacco increases chromosomal aberrations in tobacco processors. *Mutation Research/Environmental Mutagenesis and Related Subjects*, 334(2), 139–144.

Mahurkar U. (1990) “Tobacco workers in Gujarat labour in inhuman conditions” *The Magazine* May 15, 1990.

Nayak, N. S. (2018). Estimates of tobacco-dependent employment in India. *Econ Polit Weekly*, 53(40), 58–62.

Patel, J., Parmar, R., Solanki, H., Pando, B., Vohra, F., Patel, P., ... & Virendra, P.

(2022). Occupational health problems among tobacco processing factory workers, at Kheda District Gujarat: A cross sectional study. Occupational Health Problems Among Tobacco Processing Factory Workers, at Kheda District Gujarat: A Cross Sectional Study (May 15, 2023). Jinal Patel, Rahul Parmar, Heena Solanki, Bhumi Pando, Fiza Vohra, Prachi Patel, Kailash Nagar, & Virendra Jain, 1378-1387.

Rawan, A. S., & Suzan, Z. Assessment of Occupational Hazards Related Factors among Tobacco Workers. Assessment, 1(1-2023).

Sabale, R. V., Kowli, S. S., & Chowdhary, P. H. (2012). Working condition and health hazards in beedi rollers residing in the urban slums of Mumbai. Indian Journal of Occupational and Environmental Medicine, 16(2), 72-74.

Singi, G., & Hallikeri, A. (2023). Occupational Health status of tobacco processing workers in Nippani Taluk, Belgaum District of Karnataka: An Anthropological Study. Antrocom: Online Journal of Anthropology, 19(1).