

Original Article

SOCIO-DEMOGRAPHIC DETERMINANTS AND MORBIDITY PROFILE OF PEOPLE ENGAGED IN BAG MAKING OCCUPATION IN AN URBAN SLUM OF MUMBAI, INDIA

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ABSTRACT

Background: Bag making is a kind of occupation which comes under unorganized sector. An occupation is always associated with some risk which can account to health hazard. Bag makers are also not an exception to this rule.

Objectives: A present study was conducted to assess the socio-demographic determinants and morbidity profile among bag makers.

Material and methods: A cross-sectional study was carried out in the field practice area (cheetah camp urban health centre) of the T. N. Medical College, Mumbai during the period of March 2008 to August 2009. A total 800 bag makers from cheetah camp area were interviewed and examined. A pre-tested interview tool was used to collect necessary information such as clinical history, socio-demographic profile, clinical examination findings and investigations performed. Results were analysed using Statistical Package of Social Sciences (SPSS) version -17.0.

Results: In the present study, out of the 800 study participants taken in to consideration, 95.9% were males and 4.1% were females. Musculoskeletal problems were most predominant, seen in 76.3% participants followed by skin problems (40.9%), while 30.3% participants presented with gastrointestinal and 17.3% with respiratory ailment. Thirty three percent workers had ocular morbidity and injuries were observed in 26.3% workers including minor injuries such as cuts and abrasions.

Conclusion: In this study, large proportion of workers suffered from work related symptomatic morbidities mainly of musculoskeletal problems, followed by skin, eye, gastrointestinal and respiratory problems. Bag makers should be educated regarding their work related health hazards so that they are detected at the earliest and proper treatment can be initiated.

Key words: Bag makers, morbidity profile, occupational hazards, cross-sectional study

INTRODUCTION

India has made great strides in development and industrialization since the post

independence era. It is now the third largest economy in Asia and eleventh largest of the world.¹ In spite of its exponential rise in various industrial sectors and the growing urbanization,

recent estimates show that nearly 28% of the Indian population lives below the poverty line with large inter-state variations.² Moreover, it houses the second largest population around the globe.³ In spite of Mumbai being the largest and developed cities of the country⁴, located on the western coast of Maharashtra, the paradox is that, it is a host to one of the largest slums in the country.⁵ Even though there has been a lack of consensus on the accurate data about the slum population of Mumbai, available statistics show that about 40% of the city population lives in the slum-areas of the city and another 5 to 10% as pavement dwellers.⁶

The term 'occupational health' became fashionable after the 20th century; its proponents claim that it includes much more than medicine.⁷ Until now, the concept of occupational diseases denoted a specific clinical and/or pathological syndrome caused by a hazard which was specific to a particular type of work or the work environment. However this concept has evolved greatly into a much broader aspect in the recent years. It is evident that the occurrence of occupational diseases may be affected by non-occupational factors such as nutritional status and on the other hand, the prevalence and incidence of several common diseases may also be influenced by occupation.⁸ While the health hazards prevalent in the large scale industries has drawn the attention of the experts because of the dramatic element involved, this aspect does not assume any importance in relation to the industries which do not involve the machine factor at all⁹; of which bag making is one of them.

The health hazards involved in bag making are totally of a different pattern in comparison to the hazards involved in other small scale as well as large scale industries. In spite bag making occupation provides means of daily wages to many people and has been an essential small scale industry, little has been known about the possible health risks to people engaged in bag making. To the best knowledge of the authors, not much data has been published till date about the hazards of this occupation and the possible diseases that could be prevented if appropriate measures are taken adequately and in a timely manner. It is disappointing that this occupation, inspire of employing a majority of population from the Mumbai slums and having a certain future has not been given appropriate attention by research scholars in particular, to study the working conditions and the health hazards.

Hence this study was planned to investigate the morbidities of people engaged in the bag making occupation in an urban slum in the city of Mumbai.

MATERIALS AND METHODS

Study protocol: A cross-sectional study was carried out in people who are bag makers by occupation, in the field practice area (cheetah camp urban health centre) of the Topiwala National Medical College, Mumbai during the period of March 2008 to August 2009. The ethics committee of the institute approved the study.

Mapping of study area: Mapping of the study area was of paramount importance to get an estimate of the total workforce of bag makers in the area since this occupation comes under the purview of an unorganized sector and moreover, the bag makers in the study area were not registered under the ESI Act; thus making it utmost difficult to get actual figures of bag makers in the area. The study area, Cheetah camp is divided into 11 sectors that are named alphabetically from A to K. Mapping of each alphabetical sector in order to identify number of units engaged in bag making process, their distribution, and average number of workers employed in each unit was targeted in an initial survey carried out with the help of medical social workers, volunteers of the youth club and a Community Development Officer of that area. The result of the initial survey highlighted the presence of approximately 1000 bag making units with about 8-10 workers employed in each unit; thus estimating the total workforce of the bag makers to an approximate ≈ 8000 that were either self employed or working as employees in a shop or in bag making factories. Based on the observations of the survey, a pilot study was conducted. Thirty workers were randomly recruited from various bag making units for the pilot study and were interviewed in detail and subjected to a thorough medical examination to assess the magnitude of the occupational morbidity in bag makers.

Sample Size Calculation: Sample size calculation was done on the basis of the result of pilot study and purposive sampling technique was applied. Since 10% of the workers in the pilot study showed occupational health impairment, it was decided to enroll nearly 10% of the total workforce in the study area in order to generalize the results of the study to the

actual population of bag makers. Thus the study population was estimated to be 800.

Selection criteria: The beneficiaries meeting the following inclusion criteria were selected; all those bag makers who were specialized in bag making and who were either self employed or working as employees in shops, or working in-house or in a shop set-up and those engaged in the bag making occupation for at least last one year. A written informed consent was taken. Exclusion criteria included bag makers who were chronically absent during the study period and those who refused to participate in the study.

Methods: The workers were approached at their respective units during working hours. Each worker was subjected to the interview and a detail medical evaluation was done. Blood pressure was measured after advising the worker to take rest for 10 minutes using sphygmomanometer. A laboratory investigation of each individual was done at the Urban Health Centre. Each of the study participants were investigated for their blood sugar level and their complete blood profile picture including hemoglobin estimation (Hb) and ESR. Hemoglobin was estimated using Sahli's method. ESR was evaluated using Wintrobe's method while CBC was done using Wright's stain method. Blood sugar level was done using a glucometer. In addition to these, the work environment in the units was observed and several factors like ventilation, lighting, noise etc. were noted. Besides these, camp was conducted four times in the area on Sundays with the help of a trust of Cheetah Camp, which included detailed medical checkup and special ophthalmological evaluation by an ophthalmologist. The participants were also tested for vision by using Snellen's Chart. Also, a workshop was conducted with the help of an occupational therapist for the benefits of bag makers to make them self capable for minimizing musculoskeletal pains with ergonomic posturing and other tips. Socioeconomic status was evaluated by using the modified BG Prasad classification.¹⁰

Statistical analysis: The statistical analysis was performed using SPSS software (version 17.0). All values are expressed in the form of percentages, mean and standard deviation and the chi-square test was applied wherever necessary. Statistical significance was set at $P \leq 0.05$.

RESULTS

Out of the total 800 study participants, 95.9% were males and 4.1% were females. The socio-demographic profile of the study participants is shown in **Table 1**.

Table 1: Socio-demographic characteristics of the study population

Socio-demographic characteristics	Number (n=800) (%)
Age (in years)	
15-25	264 (33.0)
25-35	191 (23.9)
35-45	201 (25.1)
45-55	104 (13.0)
>55	40 (5.0)
Gender	
Male	767 (95.9)
Female	33 (4.1)
Marital status	
Single	248 (31.0)
Married	552 (69.0)
Religion	
Hindu	154 (19.3)
Muslim	646 (80.7)
Socio-economic status	
Upper	84 (10.5)
Upper Middle	244 (30.5)
Lower Middle	278 (34.8)
Upper Lower	194 (24.3)
Lower	00 (0.0)
Educational status	
Illiterate	56 (7.0)
Primary	330 (41.3)
Secondary	215 (26.9)
Higher secondary	191 (23.9)
Graduate	08 (1.0)
Family type	
Nuclear family	82 (10.3)
Joint family	506 (63.2)
Extended family	212 (26.5)
Duration of occupation	
<10 yrs	304 (38.0)
10-20 yrs	247 (30.9)
20-30 yrs	169 (21.1)
>30 yrs	80 (10.0)

The mean age of the participants was 36 ± 5 years. As expected, most of the workforce (34.8%) belonged to lower middle class socio-economic status, whereas almost half of the workers (41.3%) were only educated to the primary level.

Table 2: Morbid conditions of the study population

Morbid conditions	Number (n=800*) (%)
Musculoskeletal problems	610 (76.3)
Anemia	504 (63.0)
Skin problems	327 (40.9)
Ocular morbidity	266 (33.3)
Gastrointestinal problems	242 (30.3)
Prick injuries	210 (26.3)
Respiratory infections	137 (17.3)
Hypertension	74 (9.3)
ENT problems	70 (8.8)
Urinary infections	24 (3.0)
Diabetic mellitus	08 (1.0)
Tuberculosis	08 (1.0)

*Multiple response

On clinical examination, these workers were found to be suffering from various morbidities (**Table 2**). Morbidity pattern in bag making workers could be because of occupational exposure to unhygienic working conditions or personal habits like smoking, drinking etc. The musculoskeletal problems were most predominant and seen in 76.3% workers followed by skin disorders among 40.9% workers. While 33.3% workers presented with ocular problems and 30.3% presented with gastrointestinal problems. Injuries due to work were present in (26.3%) workers including minor injuries such as cuts and abrasions.

A brief overview of the systemic morbidity of the workers employed in bag making population is depicted in **Table 3**. Most of the bag maker's complained of pain related to musculoskeletal system with majority of them suffering from chronic lower backache (79.9%), upper backache (65.5%), and pain in legs (53.9%). With symptoms pertaining to the respiratory tract, cough and cold was the most common complaint (85.4%) followed by breathlessness (41.6%).

Ocular problems were frequent in the bag makers with 62.4% of the bag maker complaining of diminution of vision while 39.8% and 25.5% had immature senile and mature senile cataract in the eye respectively. Also about (26.9%) of the workers had dermatological manifestation in the form of pyoderma.

Table 3: Prevalence of morbidity profile among study population

Prevalence of morbidity profile	Number (%)
Musculoskeletal problems(n=610)*	
Low backache	488 (79.9)
Upper backache	400 (65.5)
Pain in legs	329 (53.9)
Pain in arms	234 (38.3)
Neck pain	120 (19.6)
Knee pain	35 (5.7)
Skin problems(n=327)*	
Itching	70 (21.4)
Pyoderma	88 (26.9)
Scabies	26 (7.9)
Rash/pigmentation	124 (37.9)
Dermatitis	68 (20.7)
Ocular morbidity(n=266)*	
Diminution of vision	166 (62.4)
Immature senile cataract	106 (39.8)
Mature senile cataract	68 (25.5)
Gastrointestinal problems(n=242)*	
Constipation	144 (59.5)
Indigestion	80 (33.0)
Flatulence	75 (30.9)
Worm infestation	50 (20.6)
Diarrhoea	34 (14.0)
Respiratory morbidity(n=137)*	
Chronic cough	117 (85.4)
Chronic breathlessness	57 (41.6)
Chest tightness	24 (17.4)
ENT problems(n=70)*	
Decrease hearing	55 (78.5)
Pain in ear	25 (35.7)
Discharge from ear	10 (14.2)

*Multiple response

As observed from **Table 4** that, a significant association was found between the presence of morbid condition and duration of their occupation. Thus, as the duration of occupation increases, morbidities also increased ($p < 0.0001$).

DISCUSSION

This study aimed to evaluate the morbidity profile of the people employed in the bag

making occupation inhabiting the slums in Mumbai.

Table 4: Association between duration of occupation and morbidities among the study population

Morbidity	Morbidity Status	Duration of occupation (in years)				p-value
		< 10 (n=304)	10 to 20 (n=247)	20 to 30 (n=169)	>30 (n=80)	
Musculoskeletal problems	Present	180	220	145	65	$\chi^2=80.766$ p<0.0001
	Absent	124	27	24	15	
Skin problems	Present	80	115	105	27	$\chi^2=63.239$ p<0.0001
	Absent	224	132	64	53	
Ocular morbidity	Present	45	85	90	46	$\chi^2=98.431$ p<0.0001
	Absent	259	162	79	34	
Gastrointestinal problems	Present	45	90	75	32	$\chi^2=58.455$ p<0.0001
	Absent	259	157	94	48	
Respiratory morbidity	Present	20	35	45	37	$\chi^2=83.910$ p<0.0001
	Absent	284	212	124	43	
ENT problems	Present	10	20	25	15	$\chi^2=29.233$ p<0.0001
	Absent	294	227	144	65	

To the best of our knowledge, this is the first study which highlights the morbidities associated in bag makers and highlights the association of socio-demographic characteristics with the associated occupational morbidity. Moreover, very few studies have been published about the living conditions and other demographics of the slums in Mumbai. Chavada VK *et al.*⁹ conducted a study on the health status of the people engaged in the tailoring occupation. We herein discuss the possible aspects that we encountered in our survey. The possible reason for the people in the slums resorting to this field as their occupation is most definitely due to lack of proper education and learning facilities available and/or affordable to them. In addition, migration, monetary constraints, hierarchy from their ancestors also add up to taking up this job.

The people engaged in bag making occupation faces a tough time tackling the occupational health problems. Musculoskeletal, dermal, gastrointestinal, ocular, and psycho-social problems form the key category of health problems found among them. Musculoskeletal disorders are far the commonest occupational related morbidity both in organized as well as unorganized sectors. They have been report vividly in workers employed in steel industry¹¹; coal miners¹²; construction workers¹³ and also those employed in unorganized sectors¹⁴ like 'bidi' making industry, glass industry workers, those employed in tailoring.⁹ It has been observed even in those doing sedentary work,

including computer professionals.¹⁵ The major genesis of the symptoms pertaining to this system in relation to work related morbidity is either ergonomic stress or to work load.¹⁶ Apart from the musculoskeletal disorders, ocular complaints were rampant amongst bag makers. The possible reasons for this is concurrent with those explained in the literature¹⁷, including but not limited to long hours of work, ergonomically unfit conditions like dim light exposure, bend posture of the head and back, constant focus of accommodation, tiny objects on which worker is focused and lastly lack of optical magnification. These occupational related health problems and morbidities require a multidisciplinary action. Health education and training of personnel may form the back bone of the cure. Application of ergonomics and better technology are also required. There is an immediate need to sensitize the management of the organizations and/or individuals employing these workers, about their problems and enforce suitable measures to prevent them.

STUDY LIMITATION

The major limitation of our study was that the study area was scattered over a large area of Mumbai and the exact estimation of the accurate figures was not possible. Moreover the population estimation was done with the help of community workers and special volunteers with utmost precision and caution; yet the possibility of judgmental error prevails. Also the data gathered, even though was done reliably, the

possibility of errors while data entering cannot be ruled out. Much was to be relied upon the clinical presentations, history and the simple bedside techniques.

CONCLUSION

As the population of our country is expected to rise in the coming years and with more number of people inhabiting the slums, more intense studies in terms of gathering data in regards to the biological and socio-demographic determinants of their health profile and ergonomic conditions at the work place are warranted in order to implement necessary interventions at appropriate levels. Moreover, it is important to define and implement appropriate national programs designed specifically to the cohort of workers in the small scale industries belonging to the slums. In regards to the bag making industry, we urge that it be organized under appropriate government norms, so that the workers become privilege to the health and occupation related facilities by providing authentic training courses, exposure and training to use modern machineries for bag making and health insurance facilities.

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