

Musculoskeletal and Other Health Problems in Workers of Small Scale Garment Industry – An Experience from An Urban Slum, Kolkata

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Abstract: The small scale garment industries have provided a good number of employment opportunities to both men and women of low socio-economic group although occupational health problems among them are not much explored. An observational, descriptive, cross sectional epidemiological study was carried out primarily to determine the prevalence of musculoskeletal and other health problems, to find out the association between musculoskeletal problems with occupational and socio demographic factors. Two slum areas of Kolkata were selected randomly from a total of 6 slums of Chetla region, Kolkata. Data were collected from 172 workers of garment industry at household level. Interviewing and examination was done with help of pretested, predesigned, semi structured schedule after obtaining informed verbal consent. Focus group discussions were arranged to assess their felt needs. 63.4% were in 15-44 years age group, 70.3% were literate. Addiction was noted in 73.8%. Musculoskeletal disorders were most prevalent (78.5%) followed by hyperacidity and heartburn (23.3%). Neck (60.7%) most commonly involved. Education, income and years, hours and nature of work had significant ($P < .05$) association with musculoskeletal problem. Regular home visit of the health functionaries along with medicine and improved referral services emerged as important felt need. Patient hearing and genuine will power through participatory health program is the need of the hour for tackling different morbidities and related felt needs.

Keywords – Felt needs, Small scale garment industry, musculoskeletal problems, FGD.

I. Introduction

India has a very fast growing economy, 48% of the population in urban areas are highest wealth quintile, while only 7% of rural population is in the highest wealth quintile¹. In developing countries great efforts are directed towards development of small scale industries. According to WHO, over 1000 million people worldwide are employed in small scale industries². The 'Garment' industry is an unorganized sector, mostly run by private establishment. It has provided ample scope of employment to people from low socio-economic status involving both men and women. Although such industries are identified with women employment in India³, the informal sector and small scale industries in particular are subject to numerous workplace hazards² and health hazards of women workers require special mention and have always traditionally been underestimated⁴ and almost neglected by all concerned authorities. Different studies^{5,6,7} showed the morbid conditions include musculoskeletal problems, diseases of the respiratory system and eye, accidents, injuries, skin diseases, stress, insomnia etc among these workers. The ill health are further compounded by various occupational and socio economic factors such as poverty, lack of education, poor working conditions, excess working hours and poor diet. In view of above, an observational, cross sectional study was attempted among the workers of small scale garment industry in an urban slum of Kolkata. FGDs were done to explore their job related problems, experience and present felt need. Representatives were selected by local health workers maintaining homogeneity. Predetermined topics were discussed one after another within stipulated time with active participation of participants. At the end of meeting, main issues brought up during discussion were summarized and reports were prepared.

II. Methodology

A cross sectional study was conducted in an urban slum of Chetla, Kolkata where there is a concentration of inhabitants engaged in garment industry during May'11 to Aug'11. The study population comprised of both women and men of above 14 years of age, engaged in works such as cutting/sewing/delivery process in small scale garment industry. There were 6 slums in the vicinity of Urban Health Centre, Chetla under administrative control of AIHH&PH, Kolkata where mostly garment industry workers were staying. Out of these six slums, two were chosen randomly. An exhaustive list was prepared consisting of 190 workers engaged in garment industry from those 2 randomly selected slums. From the prepared list of 190 workers, finally 172

workers participated. Non response rate was 9.5% and was due to absence, unwillingness and language problem. Few meetings were organized with the help of health workers to appraise study population for the purpose of the study and also to ensure their participation. Informed verbal consent was obtained from all of them prior to data collection. House to house visits was done according to the list of workers obtained beforehand. The relevant information on socio-economic conditions, occupational history, health problems, health care seeking behavior, felt needs were collected with help of a predesigned, pretested, semi structured schedule by method of interviewing, clinical examination and observation of the housing and working environment. Near the end of the study, on a prefixed date and time, two focus group discussions were held at a local club with 8 women representatives on the first day and 6 male representatives on the second day. Representatives were selected by local health workers maintaining homogeneity. The aim was to explore their job related problems, experience and present felt needs. Predetermined topics were discussed one after another within stipulated time with active participation of participants. At the end of meeting, main issues brought up during discussion were summarized and reports were prepared. The collected data were analyzed and statistical tests were done with the help of MS Excel and EPI Info software (5.3.1). Odds ratio, 95% CI, Chi-square test was used as test of significance for analyzing the difference between the two proportions ($P < 0.05$ considered significant).

III. Results

A total of 172 workers of small scale garment industries participated in the present study. Socio-demographic profile depicted that, more than half (63.4%) belonged to 15-45 years age group. 60.5% were male and one third (29.7%) of workers were illiterate. Majority (59.9%) of workers lived in joint family. 86.1% had per capita income per month of <Rs.2000/-. Addiction of tobacco noted in 38.4%, while both tobacco and alcohol addiction were seen in 19.7% of subjects. (TABLE 1). From TABLE 2 it was evident that musculoskeletal problem was the commonest ailment (78.5%), followed by hyperacidity and heartburn (23.3%). Other morbidities reported were lack of sleep (20.9%), general weakness (18.6%), visual difficulties (15.7%), RTI symptoms (12.8%), burning sensation while passing urine (8.7%). On examination, pallor (31.4%), angular stomatitis (17.4%), hypertension (10.5%), skin diseases (8.1%), pediculosis (6.4%), malnutrition (20.4%), oedema (2.9%), injury (2.3%) were found. Only 25% of the study population received treatment for different morbidities. Out of them, most (76.4%) attend government hospitals or health centers. 135 workers i.e. 78.5% were having musculoskeletal morbidities at different sites and out of these, neck (60.7%) was the commonly affected part followed by upper back (35.6%), lower back (31.1%), shoulder (24.4%), hand/wrist/fingers (23.0%) etc. 68.1% complained of aching followed by numbness (43.0%), stiffness (25.9%) and weakness (21.5%) of the affected part (TABLE 3). Clubbing was done in case of age group, education status and per capita income (PCI) per month in TABLE 4 for analysis. It is seen that musculoskeletal problems were significantly more among the illiterate workers and who had primary or middle level education ($OR = 2.93$, $\chi^2 = 8.34$, $P = 0.003$). Similarly, the workers having PCI OF <Rs.2000/- per month were suffering from musculoskeletal problems more commonly (91.9%) than the workers of higher income (8.1%). This difference was found to be statistically significant ($OR = 6.11$, $\chi^2 = 1.62$, $P = 0.000$). Half of the workers (49.4%) of small scale garment industries were engaged for more than 10 years. 46.7% of the workers worked more than 10 hours per day on average. Majority of them (54.7%) were engaged in sewing, 36.6% in cutting and only 8.7% were involved in delivery process of garments. Years, hours of work and also nature of work were associated significantly ($P < 0.05$) with musculoskeletal problem (TABLE 5).

Focus group discussion on first day with eight participants, second day six participants elicited their job related problem, social and personal matters and felt needs.

3.1 Women had to perform household activities along with their specific jobs, therefore children were deprived of specially breast-feeding and timely complementary feeding though they knew it. Also lack of time of taking rest, care to senior citizens and care to own health problems.

3.2 Women expressed domestic violence from their partners due to alcoholism.

3.3 They suffered work stress and dissatisfaction due to low remuneration, poor relationship with employer.

3.4 It was revealed from discussion that they did not bother about their morbidities as working abilities were not so affected and visiting to health care centre was time consuming.

3.5 One of the felt needs is the regular home visit of the health functionaries along with medicine for common ailments.

3.6 Referral services for emergency needs to be improved.

IV. Discussion

The occupational environment of the workers is inseparable from his domestic environment. Both are complementary to each other. But for many people the boundary between their name and workplace environment is blurred, mainly in developing countries as they often undertake small scale industry activities within their home. Generally there should be a scope of giving ample opportunity for welfare of workers

engaged in textile industry specially those involved in small scale garment industry within the home settings. Regarding the home conditions of the study population it was observed that they were the slum dwellers, worked in ill-ventilated, poorly lighted and overcrowded areas. Majority of the workers were addicted to either tobacco or alcohol or both, which are the risk factors of so many diseases. Most of the workers were migrated from rural areas in search of better living. In present study, socio-demographic profile depicted that, more than half (63.4%) belonged to 15-45 years age group. 60.5% were male and one third (29.7%) of workers were illiterate. Majority (59.9%) of workers lived in joint family. 86.1% had per capita income per month of <Rs.2000/-. Addiction of tobacco noted in 38.4%, while both tobacco and alcohol addiction were seen in 19.7% of subjects. A study done in Kolkata showed similar findings.¹⁰The present study on 172 workers of small scale garment industry highlighted that musculoskeletal problem (78.5%) was the commonest morbidity. In present study neck was found to be most commonly (60.7%) affected site which corroborates with other studies (64.1%).¹⁰Guo H.R et al reported that musculoskeletal disorders could affect sites other than back such as neck, shoulders, hands and wrist among the workers in Taiwan.¹¹ 60.2% of the batik workers in Kelantan, Malaysia had musculoskeletal symptoms at work, the most common symptoms were pain over shoulders (41.0%), lower back and ankle (34.4% each).¹² In present study after neck (60.7%), upper back (35.6%), lower back (31.1%), shoulder (24.4%) and hands/wrist/fingers (23.0%) were affected parts which did not corroborate with the study among VDT workers in Israel¹³ where neck/shoulder region involved more commonly (47.6%) followed by hand/wrist/finger (32.1%).The difference in findings might be due to difference in posture while working. In a study among papad industry workers¹⁵, the musculoskeletal problem was most evident and hand/wrist/finger were involved commonly (47.8%) instead of neck like in present study. A significant relationship was found to exist between occupation related events and musculoskeletal problems in this study and similar findings was also observed in other studies.^{10,14,15} Frost et al reported that shoulder intensive work is a risk factor for impingement syndrome of shoulder.¹⁶ Overuse of upper extremity results in shoulder myalgia.^{17,18} Various population based surveys have shown positive associations between musculoskeletal disorders and work factors like awkward postures, high physical exertion and vibration.¹⁹ The risk of developing musculoskeletal disorders from an activity depends on frequency, duration and physical demands of the activity as also reported by ILO.⁴ Two focus group discussions revealed that lack of time to take rest, to attend to personal health problems, social programs, less time for relaxations, low wage, poor attitude of employer and these were similarly observed in other studies also.^{10,14,15} A study¹⁰ among small scale industry workers showed that musculoskeletal disorders were more common among those who had worked for more number of years (>10 years), worked for longer hours (>10 h/day)and in those who were engaged in cutting and sewing. All these differences were statistically significant. Current study also showed similar findings. Stress is a burning issue leading to insomnia (20.1%) in the present study as the work is repetitive and monotonous. Other factors such as work and family balance issue may also be stressful for women at work place.¹⁹

V. Conclusion

Different sorts of morbidities with special reference to musculoskeletal problems among small scale industry workers are giving a warning signal. Therefore it is the actual need of the hour for right action for solving their job related disputes so that they can have a better living. Proper counseling and health education through campaign can work as magic to improve their condition on many aspects. To make conscious about work-related musculoskeletal problems audiovisual training program suitably designed by experts²⁰ for different sectors of industry can be implemented to get best results. Periods of rest in between long hours of work, provision of seats with adjustable back rest for support to lumbar region may be helpful to reduce low back pain. To conclude, it is the responsibility of everyone to provide health care for making urban slum to be a living place.

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TABLE 1: SOCIO DEMOGRAPHIC PROFILE OF STUDY POPULATION (N=172)

Socio demographic characteristics	No. Of subjects	Percentage (%)	
Age (in years)	15-24	28	16.3
	25-34	33	19.2
	35-44	48	27.9
	45-54	25	14.5
	>=55	38	22.1
Sex	Male	104	60.5
	Female	68	39.5
Educational status	Illiterate	51	29.7
	Primary & middle	54	31.4
	Secondary	42	24.4
	Higher Secondary and above	25	14.5
Type of family	Nuclear	69	40.1
	Joint	103	59.9
Per capita income per month (Rs/-)	<1000	45	26.2
	1000-2000	103	59.9
	>2000	24	13.9
Addiction	Tobacco	66	38.4
	Alcohol	22	12.8
	Both	34	19.7
	Others	5	2.9
	None	45	26.2

TABLE 2: *MORBIDITY PATTERN OF THE STUDY POPULATION AND TREATMENT SEEKING BEHAVIOUR (N=172)

	Total number	Percentage (%)	
*Health Problems (As Stated)	Musculoskeletal problems	135	78.5
	Hyperactivity and heart burns	40	23.3
	Menstrual problems	21	12.2
	Headache	15	8.7
	Lack of sleep	36	20.9
	Problem with vision	27	15.7
	Generalized weakness	32	18.6
	RTI symptoms	22	12.8
	Burning micturition	15	8.7
	Other acute problems (fever/cough/cold/loose motion)	31	18.0
	Pallor	54	31.4
	Raise temp	7	4.0
	Angular stomatitis/cheilosis	30	17.4
Hypertension	18	10.5	
*Findings On Examination	Pedal oedema	5	2.9
	Injury	4	2.3
	Scabies	14	8.1
	Pediculosis	11	6.4
	Eczema/dermatitis	4	2.3
	Underwtbmi<18.5	19	11.7
	Overwtbmi>=25	15	8.7
Dental caries	24	17.7	

	Yes	43	25.0
*Treatment received	Govt hospital/health centre	33	19.1
	Pvt practitioner	9	5.2
	Other(ayurved/homeopath/medicine shop)	8	4.6

*multiple response

TABLE 3: *MUSCULOSKELETAL PROBLEMS AFFECTING DIFFERENT SITES (N=135)

	Musculoskeletal problems	Total number	Percentage (%)
*Site of disorders (as stated)	Neck	82	60.7
	Shoulder	33	24.4
	Elbow/Forearm	15	11.1
	Hand/Wrist/Fingers	31	23.0
	Upper back	48	35.6
	Lower back	42	31.1
	Thigh/Knee	24	17.8
	Leg	16	11.8
	Ankle/Foot	12	8.9
*Symptoms (as stated)	Aching	92	68.1
	Numbness	58	43.0
	Stiffness	35	25.9
	Weakness	29	21.5
	Cramping	14	10.4
	Swelling	18	13.3
	Tingling	13	9.6

*multiple Responses

TABLE 4: ASSOCIATION OF MUSCULOSKELETAL PROBLEMS AND SOCIO DEMOGRAPHIC FACTORS (N=135)

Socio-demographic factors	Presence of musculoskeletal problems	Statistics
*Age group in years		
<35	49(36.3)	OR = 1.19, 95% CI = 0.22 - 1.48, $\chi^2 = 1.62, P = 0.20$
>=35	86(63.7)	
Sex		
Male	56(41.5)	OR = .68, 95% CI = 0.29 - 1.55, $\chi^2 = 0.99, P = 0.31$
Female	79(58.5)	
Type of Family		
Nuclear	52(38.5)	OR = 0.74, 95% CI = 0.33 - 1.63, $\chi^2 = 0.67, P = 0.41$
Joint	83(61.5)	
*Educational status		
Illiterate/primary & middle completed	90(66.7)	OR = 2.93, 95% CI = 1.31 - 6.63, $\chi^2 = 8.34, P = 0.003$
Secondary/Higher Secondary	45(33.3)	
*PCI Per month(Rs.)		
<2000	124(91.9)	OR= 6.11, 95% CI = 2.24 - 6.83, $\chi^2 = 1.62, P= 0.000$
>=2000	11(8.1)	

*clubbing done

TABLE 5: ASSOCIATION BETWEEN OCCUPATIONAL RELATED EVENTS AND MUSCULOSKELETAL PROBLEMS (N=135)

Occupational factors	Nature of work	Total workers	Presence of musculoskeletal problems	Statistics
Years of working	<5	26 (15.1)	8 (30.8)	$\chi^2 = 41.31, df = 2, P = .000$
	5-10	61 (35.5)	53 (86.7)	
	>10	85 (49.4)	74 (87.0)	
Hours of working per day	<5	22 (12.8)	6 (27.3)	$\chi^2 = 39.54, df = 2, P = 0.000$
	5-10	68 (39.5)	57 (83.8)	
	>10	82 (46.7)	72 (87.8)	
Nature of work	Sewing	94 (54.7)	81 (86.2)	$\chi^2 = 8.18, df = 2, P = 0.01$
	Cutting	63 (36.6)	45 (71.1)	
	Delivery	15 (8.7)	9 (60.0)	

References

- [1] Govt of India (2007). National Family Health Survey – 3, 2005-2006; 1: Ministry of Health and Family Welfare.
- [2] Occupational Health : The work place. Health and environment in sustainable development. Geneva; WHO; 1997;available from http://www.who.int/gen/occupational_health/occupational_health2.htm
- [3] Sharma S, Sharma K. Encyclopedia of Indian Women. vol 2: Women Employment New Delhi; 2005; 3: 4476.
- [4] Forastieri V. Information note on women worker's and gender issues on occupational safety and health.InternationalLabourOffice,Geneva,2000;availablefromhttp://www.ilo.org/public/english/protection/safe_work/gender/women/wk.htm
- [5] Kalia H.L. Occupational Health of Women.Indian J. of occupational health 2000; 43: 109-16.
- [6] ILO Encyclopedia: Occupational Health and Safety 1998 ;4: 89-90.
- [7] Srivastav A.K, Bihari V. Occupational Health for women a current need. JSCI2000; 59 : 995-1001.
- [8] K. Park. Park's Text Book of Preventive and Social Medicine.2009;12:709.
- [9] Prakash S. Trade and Development case studies country studies India part 4 : Textiles (monograph on the internet) Geneva; World Trade Organization; 1998.
- [10] Saha T K, Dasgupta A,Butt A,Chattopadhyay O. Health status of workers engaged in the small scale garment industry: How healthy are they?Indian J of Com Med 2010;1;35:179-182.
- [11] Guo H.R, Chang Y C,Yeh W Y, Chen C W, Guo Y I. Prevalence of musculoskeletal disorders among workers in Taiwan : A nation wide study. J of occupational health 2004; 46 : 26-36.
- [12] Musa M, Key W, Rampal K G. Work Related musculoskeletal symptoms among Batik workers in Kelantan, Malaysia. Malayasiann journal of medical sciences 2009; 7:2: 13-17.
- [13] Shuval K, Donchim M. Prevalence of upper extremity musculoskeletal symptoms and ergonomic risk factor at a Hi Tech company in Israel. Industrial Ergonomics 2005; 35: 569-581.
- [14] Dasgupta A, Das N, Chakraborty S, Chattopadhyay O. Morbidity Pattern with special emphasis on Musculoskeletal symptoms among women engaged in a home based papad making industry in a Kolkata slum; Antiseptic 2011; 10;2:84-88.
- [15] Roy S, Dasgupta A. A study on health status of women engaged in a home based papad making industry in a slum area of Kolkata. Indian J occupational environment medicine 2008;12 : 33-36.
- [16] Frost P. Shoulder impingement syndrome in relation to shoulder intensive work.Occupational health industrial medicine 1999; 41:256.
- [17] Forsman M. Motor unit recruitment in the trapezius muscle during arm movement.Occupational health insutrial medicine 1999; 41:288.
- [18] Liira J P, Shannon H S, Chambus L W. Long term back problems and physical work exposures in the 1990 Ontario Health Survey; Am J public health, 1996; 86: 382-7.NIOSH looks for women's safety and health at work editorial 2001 Nov 12 available from <http://www.occupationalhazards.com>
- [19] Saha A, Nag A, Nag P K, Occupational injury proneness in Indian women, A survey in fish processing industries, J occupational med toxicology 2006; 1:23.
- [20] Ray G Gaur, Musculoskeletal disorders in Indian context. Finnish Institute of occupational Health – Asia Pacific Newsletter1998;3: 56-59.