



Musculoskeletal pain and long working hours among garment factory workers in Bangladesh

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INTRODUCTION

- The garment industry is one of the fastest rising sectors in Bangladesh’s economy.
- However, due to rapid expansion, most of these industries are growing without proper occupational health and safety facilities.
- Workers serving in these factories, are at the risk of musculoskeletal pain due to the poor working conditions and long working hours.

OBJECTIVE

To explore the association between long working hours and work-related musculoskeletal pain among the garment factory workers of Bangladesh.

METHODS

Data source/Study Participants

- A cross-sectional study conducted by the National Institute of Preventive and Community Medicine (NIPSOM)
- Period: January – December, 2018.
- Sample size: 350 workers
- Selection criteria: age ≥18 years.
- Exclusion criterion: workers absent on the day of data collection.

Musculoskeletal pain and working hours

- The subjective health complaints inventory (SHC) scale was used for assessing the musculoskeletal pain.
- Further, it was divided into the upper limb (shoulder, neck, upper back, and arm) and lower limb pain (lower back and leg).
- Working hours were divided into 3 groups (48-60, 61-72, and >72 hours in a week).

Covariates

Sex, age, income level, housing status, family size, and education

RESULTS

Table 1. Descriptive characteristics of study participants (N=350)

Variables	MSK pain		p-Value	Upper limb pain		p-Value	Lower limb pain		p-Value
	N	%		N	%		N	%	
	158	45.1		105	30.0		83	23.7	
Working hours			<0.001			<0.001			0.006
48 - 60 hours	113	37.8		72	24.1		62	20.7	
61 - 72 hours	32	86.5		22	59.5		15	40.5	
>72 hours	13	92.9		11	78.6		6	42.9	
Age			0.002			0.021			0.141
≤ 20	13	31.7		9	22.0		6	14.6	
21 - 25	43	37.4		31	27.0		22	19.1	
26 - 30	61	47.3		35	27.1		36	27.9	
>30	41	63.1		30	46.2		19	29.2	
Sex			0.583			0.009			0.022
Male	64	47.1		52	38.2		23	16.9	
Female	94	43.9		53	24.8		60	28.0	
Income			<.001			<.001			<.001
High	47	33.8		30	21.6		23	16.5	
Medium	53	39.6		37	27.6		28	20.9	
Low	58	75.3		38	49.4		32	41.6	
Marital status			0.078			0.466			0.129
Never married	19	34.5		13	23.6		8	14.5	
Married	127	48.7		83	31.8		69	26.4	
Others	12	35.3		9	26.5		6	17.6	
Education			0.057			0.236			0.394
HSC	64	39.5		41	25.3		36	22.2	
SSC	20	41.7		17	35.4		8	16.7	
Others	55	56.7		35	36.1		28	28.9	
Primary education	19	44.2		12	27.9		11	25.6	
House status			0.599			0.231			0.404
Paka	9	37.5		4	16.7		8	33.3	
Semi paka	23	50.0		16	34.8		12	26.1	
Kacha	126	45.0		85	30.4		63	22.5	
Family member			0.502			0.197			0.448
≤2 people	70	44.5		52	33.8		33	21.4	
≥3 people	88	44.9		53	27.0		50	25.5	

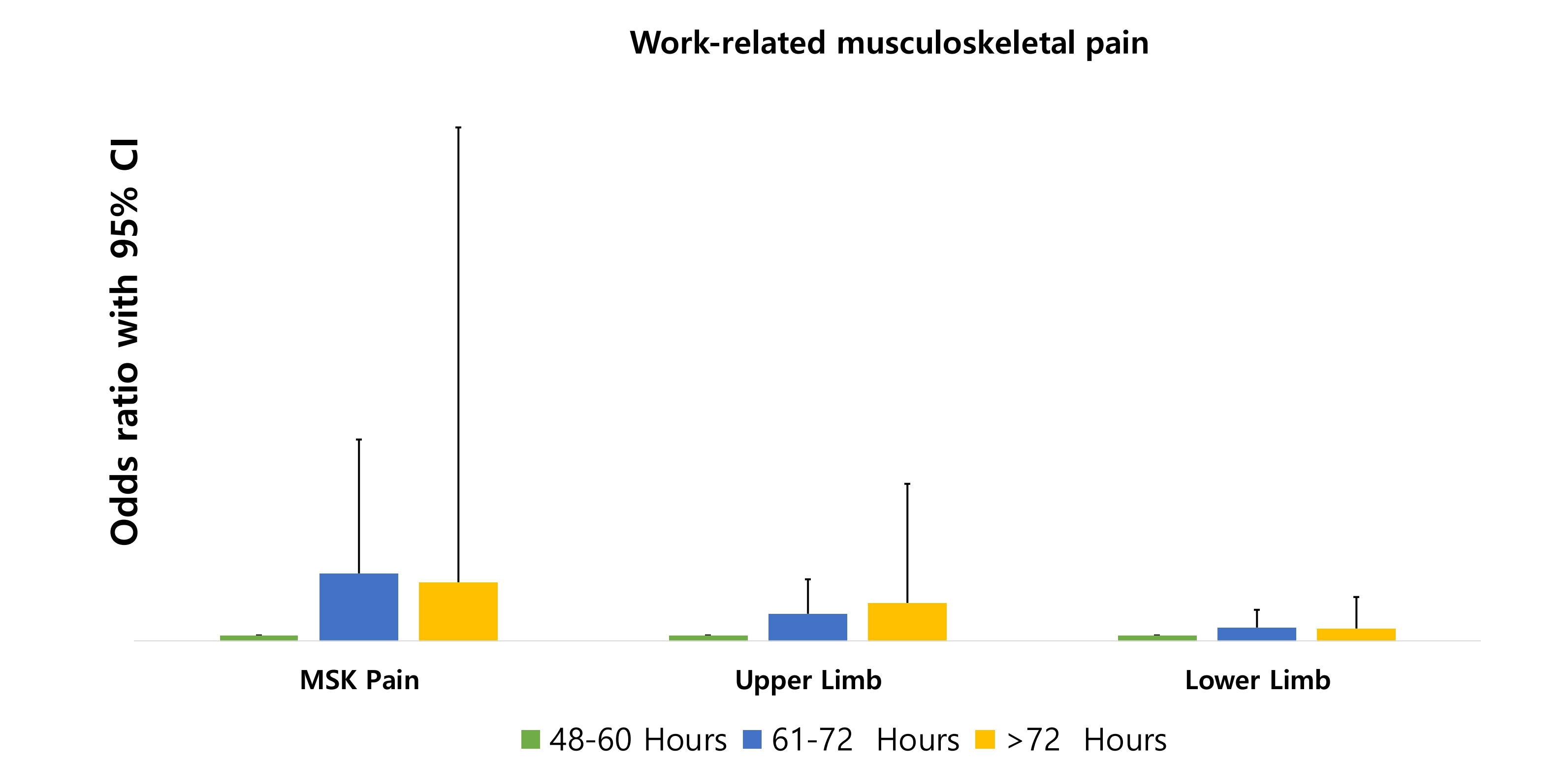
Values are presented as number (%) calculated by chi-square test.
Income was measured on BDT = Bangladesh taka
Primary education = 1-5th standard; SSC = Secondary School Certificate; HSC = Higher Secondary School Certificate;
Others = vocational or technical
Paka= house built by cement; semi-paka= roof of tin and floor with cement board; kacha= tin-shed building and floor without cement board.

Table 2. Association of working hours and musculoskeletal pain (upper and lower limb pain)

Variables	MSK pain		Upper limb pain		Lower limb pain	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Working hours						
48 - 60 hours	Reference		Reference		Reference	
61 - 72 hours	11.80	(3.98 - 34.98)	4.79	(2.12 - 10.81)	2.36	(1.04 - 5.35)
>72 hours	10.24	(1.17 - 89.34)	6.66	(1.62 - 27.33)	2.12	(0.59 - 7.68)
Age						
≤ 20	Reference		Reference		Reference	
21 - 25	1.40	(0.49 - 3.97)	1.21	(0.44 - 3.36)	1.22	(0.39 - 3.77)
26 - 30	3.17	(1.11 - 9.04)	1.62	(0.58 - 4.52)	2.53	(0.82 - 7.79)
>30	6.31	(2.03 - 19.66)	3.75	(1.25 - 11.26)	2.88	(0.86 - 9.64)
Sex						
Male	Reference		Reference		Reference	
Female	0.99	(0.58 - 1.68)	0.53	(0.31 - 0.90)	2.30	(1.26 - 4.20)
Income						
High	Reference		Reference		Reference	
Medium	0.13	(0.05 - 0.34)	0.32	(0.14 - 0.71)	0.30	(0.13 - 0.68)
Low	0.17	(0.07 - 0.41)	0.47	(0.22 - 1.01)	0.39	(0.18 - 0.84)
Marital status						
Never married	Reference		Reference		Reference	
Married	1.54	(0.67 - 3.56)	1.59	(0.67 - 3.91)	1.51	(0.59 - 3.86)
Others	0.74	(0.24 - 2.31)	1.25	(0.39 - 3.96)	0.81	(0.23 - 2.92)
Education						
HSC	Reference		Reference		Reference	
SSC	2.53	(0.90 - 7.10)	1.50	(0.58 - 3.91)	1.43	(0.53 - 3.82)
Others	1.84	(0.56 - 6.04)	1.62	(0.53 - 4.94)	0.93	(0.27 - 3.17)
Primary education	3.43	(1.23 - 9.50)	1.64	(0.65 - 4.19)	1.52	(0.59 - 3.92)
House status						
Paka	Reference		Reference		Reference	
Semi paka	0.54	(0.19 - 1.49)	0.40	(0.12 - 1.35)	1.92	(0.73 - 5.06)
Kacha	1.70	(0.81 - 3.59)	1.57	(0.73 - 3.36)	1.44	(0.65 - 3.20)
Family member						
≤2 people	Reference		Reference		Reference	
≥3 people	0.58	(0.33 - 1.03)	0.51	(0.29 - 0.92)	0.85	(0.47 - 1.55)

Results were derived from binary logistic regression models after adjusted for age, sex, income, marital status, education, house status, family member.

Figure 1: Association of musculoskeletal pain (upper and lower limb) and working hours per week



*MSK, musculoskeletal; CI, confidence interval

DISCUSSION

- Nearly half of the workers had experienced work-related musculoskeletal disorders (WMSDs)
- Long working hours and musculoskeletal pain has shown significant association, with upper limb pain having a stronger association than the lower limb.

To our best knowledge, this is the first study from Bangladesh regarding this topic. Further investigations need on work exposure variables with working hours, and their effect on the initiation of musculoskeletal symptoms.

CONCLUSION

Long working hours per week have a strong relationship with the prevalence of musculoskeletal pain. Policymakers should be more concerned about the health of the workers, before setting the optimal reference for working hours.

Ethical review:
This study has been approved by the Institutional Review Board of the National Institute of Preventive and Community Medicine (NIPSOM-2018-471).

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