# Original Article

# QUALITY OF WORK LIFE, HEALTH STATUS AND ASSOCIATED FACTORS AMONG WORKERS OF READY-MADE GARMENT FACTORY IN DHAKA CITY

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### **ABSTRACT**

**Background:** The Ready-Made Garment (RMG) sector is the largest contributor to Bangladesh's economy, employing approximately 3.6 million workers, 80% of whom are women. Despite its economic significance, poor working conditions negatively impact workers' health and quality of work life (QWL). This study aims to assess the quality of work life (QWL) among garment workers in Dhaka and effects of related factors and health problems influencing it.

**Methods:** A cross-sectional study was conducted among 110 garment workers from two factories in Dhaka between March and June 2021. Data were collected using a semi-structured questionnaire, including socio-demographic details, work-related factors, QWL measured by the Inventory for Measuring Quality of Work Life (QWL), and health status assessed using the Inventory of Subjective Health (ISH).

**Results:** The mean age of participants was  $23.25 \pm 5.29$  years, with 70.0% aged  $\leq$ 25 years and 69.1% being female. About 39.1% had secondary or higher education, and 61.8% were married. Most (64.5%) had a monthly family income of  $\leq$ 13,500 BDT. Over half (53.6%) had 1–3 years of experience, and 60.9% worked in the sewing section. More than half (50.9%) reported low or unsatisfied QWL. Significant factors associated with high QWL included younger age (p=0.000), secondary or higher education (p=0.000), higher income (p=0.002), and working in the sewing section (p=0.000). Common health issues included fatigue (97.3%), hand tremors (95.5%), musculoskeletal pain (73.6%), fever (72.7%), cough (57.3%), and eye strain (39.1%). Logistic regression showed younger workers ( $\leq$ 25 years) were 5.95 times more likely to report high QWL (p<0.001), while better health status increased the likelihood by 1.79 times (p<0.001).

**Conclusion:** Poor working conditions in the garment sector significantly affect workers' health and reduce their QWL. Addressing occupational hazards, providing adequate wages, implementing proper ventilation, and ensuring workplace safety measures are essential to improving worker well-being and productivity.

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## INTRODUCTION

The Ready-Made Garment (RMG) sector in Bangladesh has played a significant role in the country's economic growth by providing employment opportunities, particularly for rural marginal populations<sup>1-4</sup>. With over 5,100 garment factories employing approximately 3.6 million workers - 80% of whom are women- this sector is the backbone of Bangladesh's export economy<sup>6-7,10-11</sup>. However, despite its economic contribution, the health and wellbeing of garment workers remain a major concern. Many workers face long working hours, repetitive tasks, and stressful environments, leading to various

health issues, including musculoskeletal disorders, respiratory problems, malnutrition, skin diseases, and reproductive health complications<sup>8-10</sup>. Quality of Work Life (QWL) is an essential factor influencing workers' health, job satisfaction, and productivity<sup>7-9</sup>. It encompasses working conditions, job security, wages, workload, work environment, and health and safety measures<sup>12-14</sup>. A positive QWL ensures better physical and mental well-being, reducing absenteeism and turnover rates while enhancing overall efficiency<sup>15,16</sup>. Studies have shown that garment workers in Bangladesh often work under immense pressure to

meet production demands, frequently engaging in overtime and night shifts <sup>14,16-17</sup>. These conditions significantly impact their physical and mental health, requiring urgent policy interventions <sup>18</sup>. This study aims to assess the health status of female garment workers in Dhaka and examine the factors influencing their quality of work life.

### **METHODS**

## Study Design, Population, and Period

This descriptive type of cross-sectional study was carried out among garment workers aged 18 years and above in two readymade garment factories located at Malibagh Chowdhuri para, Dhaka, Bangladesh, between March to June 2021. The sample size for this study was calculated using Cochran's formula: n =  $z^2pg/d^2$ , where n = desired sample size, z = standard normal deviate at 95% confidence level (1.96), p=expected proportion/ prevalence, q=1-p, d = absolute precision (10% or 0.1). The sample size was estimated using a prevalence (p) of 50% for quality of work life among garment workers. Putting the numbers in the equation, got  $n = (1.96)^2 \times 0.5 \times (1-0.5)$  $/(0.1)^2 = 96$ . To account for a 10% non-response rate. the final sample size was calculated as 96+10=106. For the easy and better calculation, another 4 respondents were interviewed. So, finally 106+4=110 respondents were taken as sample size. Garment workers who were absent on the day of data collection and were unwilling to participate, were excluded. Finally, garment workers were selected conveniently for this study.

## **Data Collection Instrument and Procedure**

A semi-structured questionnaire was used for data collection. The questionnaire was first pretested on 10 garment workers in another factory located at Mohakhali, Dhaka. After making a few adjustments, it was finalized for data collection. The questionnaire comprised of information on socio demographic characteristics, work-related factors, quality of work life assessed by the Inventory for measuring the quality of work life (QWL) and health status determined by Inventory of subjective health (ISH). Data were collected by face-to-face interviews at their residential locations after working hours. The purpose of the study was explained to the respondents and informed written consent was obtained before the interview.

# Inventory For Measuring the Quality of Work Life (QWL)

The inventory developed by Sinha and Sayeed (1980) for measuring QWL was used to assess quality of work life in this study. Inventory had 85 items with a 7-

point scale ranging from 1 to 7. The items were either in question or statement or quotation. The respondents response were to encircle an appropriate numeral (1 to 7) furnished on the right side of each item according to their agreement or disagreement, satisfaction or dissatisfaction, feeling positively or negatively with the statement. The numerals encircled were added to for the total or overall QWL score. Three items of the inventory (item numbers 56,57 and 60) were negative and their scoring was reversed. For Bangla, Bangle version of Sinha and Sayeed's scale as developed by Haque in 1991 was used. 1-3 The two categories of Ouality of Work Life level were determined by dividing the range of possible QWL scores (1-7) into two intervals. Those scoring which were greater than overall mean (Grand Mean) of OWL were categorized to be high or satisfied and the scoring less than or below overall mean (Grand Mean) were categorized to be low or unsatisfied with QWL.4

# **Inventory of Subjective Health (ISH)**

To assess the complaints of the respondents regarding health, an inventory for subjective health developed by DIRKEN (1967) was used which consists of 58 items concerning health complaints of various types, to which subject's answer yes or No. The inventory was found to be significantly correlated with the inventory of WILDE (1963). An internal consistency coefficient of 0.91 for this scale was reported by DIRKEN (1967). Among 58 questions, 48 questions were used to complete a score for an inverse approximation of general health. The other 10 items used to serve to stimulate concentration during the filling out of the form and to prevent the effects of irrelevant responseset. Possible range of scores were from 0 to 48 and all scores were assumed to form an index of ISH. KHALEQUE and RAHMAN (1987) adapted Bangla version of this inventory and that was used in the present study. The Bangla version of the scale got 56 items instead of original 58 items.<sup>2,5-7</sup>To interview the garment workers, this Bangla adapted version was shortened to 28 items to assess the complaints of the workers regarding health. Yes was counted as '1' and No was counted as '0' for scoring the subjective health questionnaire.

# **Outcome and Explanatory Variables**

The outcome variable was quality of work life level based on the QWL score categories. Explanatory variables included sociodemographic factors and work-related factors.

## **Statistical Analysis**

Data analysis was performed using IBM SPSS Version 26. Descriptive statistics were calculated and presented in frequency (percentage) for categorical variables and mean (±standard deviation) for

continuous variables. Pearson's Chi-square and Fisher's exact tests were used to assess sociodemographic characteristics, work-related factors and effect of health problems across quality of work life categories where appropriate. Binary logistic regression analysis was done to explore factors independently associated with Quality of work life. A p-value <0.05 was considered statistically significant.

### **RESULTS**

This study revealed that the mean age was 23.25  $\pm$ 5.291 years. The majority (70%) were aged below or equal 25 years and were female (69.1%). Around 39.1% had secondary and above education level. More than half (61.8%) were married with a monthly family income below or equal 13,500 BDT (64.5%). Regarding work experience, more than half (53.6%) had 1-3 years, and 60.9% worked in sewing sections. More than half (52.7%) worked as helper followed by (20%)in the garments. sociodemographic characteristics and work-related features of the ready-made garment workers are presented in table 1.

The pie chart shows the distribution of quality of work life types and the distribution of subjective health status among the study participants (Figure 1). More than half of the participants (50.9%) had low or unsatisfied quality of work life, followed by rest (49.1%) having high or satisfied quality of work life.

Table 2 shows the distribution of participants sociodemographic characteristics and work-related factors by categories of QWL. Participants with high or satisfied quality of work life were significantly younger (p=0.000). Married (p=.027) and having income more than 13,500 BDT(p=.002) with educational level secondary and above (p=.000) and designated as helper (p=.000) working in the sewing section (p=.000) were significantly associated with high or satisfied quality of work life. Among the workers, though not statistically significant female workers (74.2%) and having work experience from 1 to 3 years were associated with high or satisfied quality of work life.

Table 3 shows distribution of respondents by their health problems. Majority of them felt sleepy immediately coming home after work (97.3%), tremor in hands (95.5%) and senseless or severe pain in any extremities (73.6%). They were also suffering from fever (72.7%), cough (57.3%), headache (30.0%), back pain (22.7%). Often they felt pain in eyes or around eyes (39.1%), discomfort in stomach (29.1%) and often faced small accidents (20.0%). Moreover,

none of them complaint about often becoming puzzle, nervous, careless, easily becoming angry, getting tired frequently, suffered from boils or urticaria, blocked nose, sneezing frequently and feeling discomfort in taking rapid respiration. Still all of them were more capable after their normal work.

Table 4 showing effect of health problems on Quality of Work Life. Participants having health problems like suffering from cough (p=.002), headache (p=.016), pain in bones or muscles (p=.007), pain in eyes or around eyes (p=.000), feeling tremor in hands (p=.025) and feeling tired when woke up (p=.000) were found statistically significant with high or satisfied quality of work life (QWL).

Table no 5.1 to 5.2 shows that direct logistic regression was performed to assess the impact of a number of factors on the likelihood that respondents would report with their quality of work life. The full model containing all predictors were statistically significant, X2 (10, N=110) = 70.290, p = < 0.05. The model as a whole explained between 47.2% (Cox and Snell R. square) and 63.0 % (Nagelkerke R squared) of the variance in quality of work life and correctly classified 80.9% of cases. As shown in table, age, current work experience and total health score (p=<0.05) added significantly to the model/prediction. This indicated that younger age group and increasing total health score were associated with an increased likelihood of exhibiting high or satisfied quality of work life (QWL). However, increasing current work experience was associated with a reduction in the likelihood of exhibiting high or satisfied quality of work life (QWL). Younger age group (age below or equal 25 years) were 58.2 times more likely to report high or satisfied QWL and respondents with increasing total health score were 2.00 times more likely to report high or satisfied quality of work life (QWL). 1 to 3 years of current work experience was 0 .02 times associated with a reduction in the likelihood of exhibiting high or satisfied quality of work life (QWL).

Table no.5.3 shows the reduced model of logistic regression predicting likelihood of reporting quality of work life. The model as a whole explained between 26.7% (Cox and Snell R square) and 35.6% (Nagelkerke R squared) of the variance in quality of work life (QWL) status. Here after adjustment, age and total health score were statistically significant with high quality of work life (p<0.001). Age and total health score produce an odds ratio of 5.951 and 1.799. This indicated that for younger age group (below or equal 25 years) was 5.95 times and respondents with increasing total health score were 1.79 times more likely to report high or satisfied quality of work life (QWL).

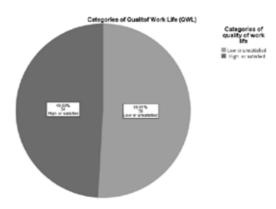


Fig1: Distribution of the respondents by Quality of Work Life (QWL)

Table 1. Socio demographic and work related characteristics of the respondents

Characte	N= 110*			
Age group	Below or equal 25 years	77 (70)		
	More than 25 years	33(30)		
Gender	Male	34(30.9)		
	Female	76 (69.1)		
Educational status	Illiterate	28(25.5)		
	Primary	39(35.5)		
	Secondary and above	43(39.1)		
Income group	Below or equal 13,500	71(64.5)		
	More than 13, 500	39(35.5)		
Marital status	Single <sup>1</sup>	42(38.2)		
	Married	68(61.8)		
Current work experience (years)	Less than 1 year	43(39.1)		
	1 to 3 years	59(53.6)		
	More than 3 years	8(7.3)		
Immediately Higher position	Operator	58(52.7)		
	Supervisor	33(30.0)		
	Knitting master	19(17.3)		
Work section	Knitting	23(20.9)		
	Sewing	67(60.9)		
	Finishing	20(18.2)		
Designation	Helper	58(52.7)		
	Packing man	17(15.4)		
	Operator	22(20.0)		
	Fidder man	6(5.5)		
	Knitting master	7(6.4)		

<sup>\*</sup>Frequency (Percent); 1 = Includes unmarried, divorced, widowed, separated

Table 2. OWL of the participants by Socio-demographic and work-related characteristics

	Yb a a 4 a a 4 a a	Quality of	Quality of work life				
C	Characteristics	Low or unsatisfied1*	High or satisfied1**	]			
Gender	Male	le 20 (35.7)		$X^2=1.233$			
	Female	36(64.3)	40(74.1)	p=.267			
Marital status	Single	27(48.2)	15(27.8)	$X^2=4.86$			
	Married	29(51.8)	39(72.2)	p=.027			
	Less than 1 year	19(33.9)	24(44.4)	$X^2=1.376$			
	1 to 3 years	33(i58.9)	26(48.1)	p=.503			

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Current work	More than 3 years	4(7.1)	4(7.4)	
experience				
(years)				
Income group	Below or equal 13,500	44 (78.6)	27(50.0)	$X^2=9.807$
	> 13,500	12(21.4)	27 (50.0)	p=.002
Immediate	Operator	35(62.5)	23(42.6)	$X^2=4.521$
higher position	Supervisor	14(25.0)	19(35.2)	p=.104
	knitting master	7(12.5)	12(22.2)	
Educational	Illiterate	23(41.1)	5 (9.3)	$X^2=20.168$
status	Primary	21(37.5) 18(33.3)		p=.000
	Secondary and above	12(21.4)	31(57.4)	
Designation	Helper	35(62.5)	23 (42.6)	$X^2=31.587$
	Packing man	14(25.0)	3(5.6)	p=.000
	Operator	2(3.6)	20(37.0)	
	Fidder man	0(0.0)	6 (11.1)	
	Knitting master	5(8.9)	2(3.7)	
Age group	Below or equal 25	48(85.7)	29(53.7)	$X^2=13.414$
	More than 25	8(14.3)	25(46.3)	p=.000
Work section	Knitting	11(19.6)	12(22.2)	$X^2=15.335$
	Sewing	27(48.2)	40(74.1)	p=.000
	Finishing	18(32.1)	2(3.7)	

\*n=54; \*\*n=56; <sup>1</sup>= Frequency (Percent) QWL: Quality of Work Life

Table 3. Distribution of respondents by health problems

Health problems	Y	es *	No *		
Do you often feel any discomfort in stomach	32	(29.1)	78	(70.9)	
Do you often suffer from headache	33	(30.0)	77	(70.0)	
Do you often feel pain in eyes or around eyes	43	(39.1)	67	(60.9)	
Do you feel any pain in bones or muscles	10	(9.1)	100	(90.9)	
Do you often suffer from back pain	25	(22.7)	85	(77.3)	
Are you often lazy or sleepy	75	(68.2)	35	(31.8)	
Have you ever felt senseless or severe pain in any extremities	81	(73.6)	29	(26.4)	
Do you think yourself strong	89	(90.9)	21	(19.1)	
Do you feel yourself lean & thin	21	(19.1)	89	(80.9)	
Are you tired when woke up	75	(68.2)	35	(31.8)	
Have you ever suffered from fever	80	(72.7)	30	(27.3)	
Do you often face small accidents	22	(20.0)	88	(80.0)	
Do you often feel tremor in hands	105	(95.5)	5	(4.5)	
Do you feel sleepy immediately coming home after work	107	(97.3)	3	(2.7)	
Are you often suffering from cough	63	(57.3)	47	(42.7)	
Do you usually stay at home when you are slight sick			110	(100.0)-	
Do you easily become angry			110	(100.0)	
Are you often nervous			110	(100.0)	
Are you often careless			110	(100.0)	
Do you have any problem with defecation			110	(100.0)	
Do you often become puzzle			110	(100.0)	
Do you often suffer from boils or urticaria			110	(100.0)	
Do you get tired frequently			110	(100.0)	
Have you ever felt senseless or severe pain in any extremities			110	(100.0)	
Do you often suffer from blocked nose			110	(100.0)	
Do you sneeze frequently			110	(100.0)	
Do you feel discomfort in taking rapid respiration			110	(100.0)	
Are you still more capable after normal work	110	(100.0)			

<sup>\*</sup>Frequency (Percentage)

Table 4. QWL of the participants by health problems

		Quality of			
Health problems		Low or unsatisfied 1 *	High or satisfied <sup>1</sup> **	Significance**	
Are you often suffering from cough	Yes	24(42.9)	39(72.2)	X <sup>2</sup> =9.687; p=.002	
Do you often feel tremor in hands	Yes	51(91.1)	54(100.0)	$X^2=5.051;$ p=.025	
Do you often face small accidents	Yes	10(17.9)	12(22.2)	X <sup>2</sup> =.327; p=.567	
Have you ever suffered from fever	Yes	38(67.9)	42(77.8)	X <sup>2</sup> =1.364; p=.243	
Are you tired when woke up	Yes	29(51.8)	46(85.2)	X <sup>2</sup> =14.136; p=.000	
Do you feel any pain in bones or muscles	Yes	1(1.8)	9(16.7)	X <sup>2</sup> =7.366; p=.007	
Do you often feel pain in eyes or around eyes	Yes	12(21.4)	31(57.4)	X <sup>2</sup> =14.946; p=.000	
Do you often suffer from headache	Yes	11(19.6	22(40.7)	$X^2=5.827;$ p=.016	
Do you often feel any discomfort in stomach	Yes	18(32.1)	14(25.9)	X <sup>2</sup> =.515 p=.473	
Total subjective Health problems score		19.05(1.69) <sup>2</sup>	20.62 (1.62) <sup>2</sup>	F=24.630; p=.000	

<sup>\*(</sup>n=56); \*\*(n=54); \*\*\* Pearson Chi-Square; <sup>1</sup>= Frequency (Percentage); <sup>2</sup>=Mean (SD)

Table 5. Relationship between QWL, socio-economic, work related characteristics, and total health score Table 5.1: Model summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	82.166 <sup>a</sup>	.472	.630

Table 5.2: Logistic regression predicting likelihood of reporting quality of work life

	В	S.E.	Wald	df	Sig	Evn(P)	95% C.I. for EXP(B)	
	D	S.E.	waid	aı	Sig.	Exp(B)	Lower	Upper
Age group(1)	4.055	1.464	7.677	1	.006	57.713	3.276	1016.588
Total health score	.697	.192	13.201	1	.000	2.007	1.378	2.923
Working section			1.743	2	.418			
Working section (1)	18.798	12093.792	.000	1	.999	1.458E8	.000	
Sewing section								
Working section (2)	-2.037	1.543	1.743	1	.187	.130	.006	2.684
Finishing section								
Gender (1)	-17.350	12093.792	.000	1	.999	.000	.000	
Marital status (1)	.918	.747	1.512	1	.219	2.505	.580	10.827
Educational level (1)	1.274	.833	2.337	1	.126	3.574	.698	18.291
Income level (1)	056	.871	.004	1	.949	.945	.172	5.208
Current work			5.117	2	.077			
experience								
Current work	599	.761	.620	1	.431	.549	.124	2.439
experience (1) Less								
than 1 year								
Current work	-3.738	1.660	5.072	1	.024	.024	.001	.616
experience (2) 1 to 3								
years								
Constant	-16.460	4.154	15.704	1	.000	.000		

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1 able 5.3	. Logistic re	egression	predicting if	ikeiinooa o	i repo	rting quai	ity of work	me (Reauce	ea moaei)	
				Model Sur	nmary					
Step	Step -2 Log likelihood Cox & Snell R Square Nagelkerke R Square									
1	118	3.300a		.267			.356			
		В	C E	Wald	df	6:-	95% C.I. fo		or EXP(B)	
			S.E.	waiu	ai	Sig.	Exp(B)	Lower	Upper	
Age gr	oup (1)	1.784	.548	10.576	1	1 .001 5.951 2.031		2.031	17.434	
Total health score		.587	.148	15.635	1	.000	1.799	1.345	2.407	
Cons	Constant		2.987	16.552	1	.000	.000			

Table 5.3. Logistic regression predicting likelihood of reporting quality of work life (Reduced model)

#### DISCUSSION

This study examined the quality of work life (QWL) with it's related factors and health problems among garment workers in Dhaka, Bangladesh. Findings from a previous study conducted in Dhaka city revealed similar age distributions among garment workers, with the majority being 25 years or younger. However, a key difference was observed in gender distribution; the earlier study indicated a predominance of male workers (71.6%), whereas the current study reports a higher proportion of female workers (69.1%). Income levels were consistently low across both studies, though specific income ranges varied, highlighting persistent economic challenges faced by garment workers 14,19.

Consistent with research conducted in Sri Lanka, Bangladesh, India, Fiji, and Lithuania, musculoskeletal disorders were identified as a common health concern among garment workers. However, the prevalence of musculoskeletal disorders in this study was higher than the 15.5% reported in Sri Lanka, while still falling within the broader global range of 12% to 80%9. This variation may be attributed to differences in working conditions, job roles, and workplace ergonomics across countries.

Respiratory symptoms were less frequently reported in the Sri Lankan study (3.4%), whereas the current study found a higher prevalence of cough and other respiratory complaints<sup>9</sup>. This aligns with previous research on Bangladeshi garment workers, which has linked respiratory issues to prolonged exposure to fabric dust in enclosed environments<sup>7</sup>. Additionally, this study identified significant associations between QWL and health issues such as headaches, musculoskeletal pain, and eye strain, consistent with findings from other studies. However, unlike the Sri Lankan study, which assessed headaches using the Headache History Questionnaire, the current study evaluated them through a general health inventory, which may explain differences in prevalence estimates.

Psychosocial concerns, such as workplace harassment, were rarely reported in both the current and Sri Lankan

studies. However, underreporting due to fear of retaliation or social desirability bias remains a potential limitation. While workers in Sri Lanka benefited from better ventilation, access to on-site medical professionals, and labour regulations, these conditions are often lacking in Bangladeshi factories, potentially contributing to poorer health outcomes.

Another study in Dhaka found that garment workers in Bangladesh, particularly female workers, experience significant musculoskeletal issues. Due to prolonged work without adequate rest, female workers frequently report pain in their arms, legs, and muscles. Additionally, the work environment, characterized by high humidity and poor ventilation, has been associated with skin conditions such as pruritus and allergies. Respiratory problems are also common, particularly among female workers involved in fabric stitching, as they are continuously exposed to fabric dust<sup>10</sup>.

Furthermore, a study on health problems and QWL among garment workers in Dhaka revealed that respondents experiencing cough had significantly lower mean QWL scores (281.32  $\pm$  24.803). Those reporting stomach discomfort had higher mean QWL scores (292.04  $\pm$  28.133), though this difference was not statistically significant. Similarly, the mean QWL score for respondents suffering from headaches was lower (288.90  $\pm$  27.563) $^{20}$ .

Finally, logistic regression analysis in this study demonstrated that younger age and better health status were associated with a higher likelihood of satisfactory QWL. These findings align with research conducted in Malaysia, where QWL was positively linked to work commitment and job satisfaction<sup>8</sup>. However, unlike the Malaysian study, which found no significant demographic influence on QWL, the current study identified strong associations between education, income, and job designation with QWL. This finding supports the earlier findings by studies in India and Bangladesh. <sup>3,19-20</sup>

### **CONCLUSION**

This study highlights the quality of work life (QWL) with it's related factors and significant health issues among garment workers in Dhaka, emphasizing their impact on worker well-being and productivity. More than half were less satisfied with their QWL. So, poor working conditions contribute to musculoskeletal, respiratory, and gastrointestinal problems, which in turn affect overall job satisfaction and work performance. The findings underscore the reliance of the garment sector on the female workforce and the need for targeted interventions to improve both QWL and health outcomes. Enhancing workplace conditions and ensuring better health support systems are essential to maintaining productivity and sustaining the industry's global competitiveness.

### Limitations

The study's cross-sectional design limits causal inferences, and the small sample size restricts generalizability. Additionally, reliance on self-reported data may introduce biases, affecting the accuracy of health status and quality of work life assessments. The findings may not be representative of all garment workers in Bangladesh.

#### Recommendations

- Introduce regular breaks to alleviate fatigue and musculoskeletal issues.
- Improve workplace ventilation and provide safe drinking water.
- Offer health and safety training, including proper handling of chemicals.
- Ensure access to on-site medical care and first aid facilities.
- Increase worker wages to combat malnutrition and fatigue.
- Implement legislation to improve worker health and safety conditions.
- Conduct larger, longitudinal studies for more comprehensive data.

# **Ethical Considerations**

The study protocol was approved by the Institutional Review Board of NIPSOM (Memo no: NIPSOM/IRB/2021/18). Informed written consent was obtained from all participants after explaining the study objectives and assuring confidentiality and voluntary participation.

# Acknowledgment

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