INDOGENIUS

ISSN 2828-1365

Volume 5, Issue 1 : 172 - 179

The Relationship Between Work Load, Working Length And Working Posture With Low Back Pain (LBP) Complaints In Convection Tailors In Karawang 2025

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Article Info

Keywords :
workload, working hours, working posture, Low Back Pain(LBP), garment tailors

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ABSTRACT

Background & Objective: This study aims to analyze the relationship between workload, working duration, and work posture with low back pain (LBP) complaints in garment tailors in Karawang Regency in 2025. **Method:** The method used is descriptive analytic with a cross-sectional design, involving 45 respondents. Data were collected through a questionnaire that measured the variables of workload, working duration, working posture, and LBP complaints. **Result:** The results showed that 77.8% of respondents experienced severe LBP. Bivariate analysis with the Chi-Square test showed a significant relationship between workload (p = 0.029), working duration (p = 0.022), and working posture (p = 0.013) with the incidence of LBP. The odds ratio (OR) for heavy workload was 6.769, working duration >8 hours was 6.000, and very high working posture was 7.250 **Conclusion:** In conclusion, garment tailors with high workload, working duration more than 8 hours, and non-ergonomic working posture have a higher risk of experiencing LBP. This research is expected to provide insight for convection industry managers to take appropriate preventive measures.

DOI: https://doi.org/10.56359/igj.v5i1.839

Introduction

According to data from the 2018 Labor Force Survey (LFS), there were 1.144 million cases of musculoskeletal disorders in the United Kingdom, while in the United States there were 6 million cases of similar disorders each year. The WHO estimates this problem, representing 3.71% of the total population. In Karawang Regency, the morbidity rate reached 6.35%, with a higher prevalence in men (7.18%) than in women (5.33%).

Indonesia is one of the countries where back pain cases continue to rise. According to the 2021 National Health Research and Development Agency (RISKESDAS), back pain affects 12,914 people in Indonesia, or 3.71% of the total population, second only to influenza. The Indonesian Neurologists Association (PERDOSSIS), assisted by fourteen teaching hospitals, found that 819 people, out of 4,456 pain sufferers, experienced low back pain.(Sari et al., 2024).

Low back pain (LBP) is more common in West Java than in all of Indonesia. Bandung Regency has the highest number of cases with 3,890, followed by Kuningan Regency with 1,602, Banjar City with 1,373, and Pangandaran City with 1,373.(Health Office 2020).

The morbidity rate in Karawang Regency in 2020 was 6.35%, meaning that there were 6 people who were sick out of 100 residents to the point that it disrupted their daily activities, whether for work, school, taking care of the household or doing other activities, while according to gender, the morbidity rate for women was smaller, namely 5.33% and for men 7.18% (Dinkes, 2020)

A preliminary study was conducted at two garment factories in Tirtajaya District. At Factory A, 70% of employees reported low back pain (LBP) due to high workloads and unergonomic postures, while at Factory B, 60% of employees experienced LBP despite more flexible working hours. Lack of understanding of ergonomic work techniques was the main contributing factor. This study aims to further explore the factors influencing LBP complaints in both factories.

MSDs can reduce work productivity, which can disrupt socioeconomic activities due to fewer work days. Furthermore, poor product quality can lead to complaints and lost customers, which can harm your business.(Febyant, 2023).

Low Back PainLow Back Pain (LBP) is a musculoskeletal condition that is often caused by heavy exertion and lasts for more than a day. If left untreated, it can cause deformities in the muscles and skeleton. When muscles experience repeated static loads over a long period of time, this can lead to problems such as damage to tendons, ligaments, and joints.(Utami Wahyu Y 2024).

Tailoring is one of the occupations that is most at risk of experiencing lower back pain.(Panjaitan et al., 2021).Muscular and skeletal health problems are common in tailors who do the same job repeatedly over long periods of time. Lower back pain is usually experienced by tailors due to sitting too long, incorrect sitting posture, and unhealthy body posture.(Kamariah, Arifin, and Setiadi 2020).

Workload is the amount of work or tasks a person must do in a given time period, usually measured in terms of the number of tasks to be completed or the time spent completing those tasks. Excessive workload can affect a person's performance and can lead to stress, fatigue, dissatisfaction, and even illness.(Aditya W. 2023).

The term length of service is used to describe the amount of time a person spends completing a job.(Syalsabila et al., 2021).Tailors who work more than 8 hours a day are more prone to LBP, according to Muslim research (2021). Working too long can also cause lower back pain.(Annissa et al., 2024). Work posture is an attitude towards work that occurs while carrying out tasks efficiently and minimizing physical activity.(Oesman, et al, 2019).

Occupational Health Nursing(OHN) Occupational health nurses or work health nurses help prevent, investigate and treat illnesses and injuries in the workplace.(Herawati & Bratajaya, 2022).There are eight roles that nurses can play in

a health science consortium: providing nursing care, being an educator, coordinator, manager, collaborator, consultant, and researcher in the field of nursing.

Objective

This study aims to analyze the relationship between workload, working hours, and work posture on low back pain (LBP) complaints among garment workers in Karawang Regency in 2025.

Method

J The type of research used is a descriptive analytical design with a cross-sectional approach. This approach allows researchers to collect data on the variables studied in a certain time, so that they can analyze the relationship between independent variables (workload, length of work, and work posture) with the dependent variable (Low Back Pain (LBP) complaints). The population in this study were 45 tailors in the districts of Tirtajaya, Batujaya, and West Karawang. The sampling technique used random sampling, which is a random sampling technique without paying attention to strata in the population.

Data collection was conducted using a questionnaire that included questions about demographic data, workload, length of service, work posture, and complaints of low back pain (LBP). Data analysis was performed using the Chi-Square test.

Results

Univariate Analysis

Table 1. Distribution of Respondents by Age

Age	Frequency	
	N	%
20-40	21	46.7
41-46	10	22.2
50-56	14	31.1
Total	**45**	**100**

Based on Table 1, of the 45 respondents surveyed, the largest age group was 20-40 years old, with 21 respondents (46.7%). The 41-46 age group had 10 respondents (22.2%), while the 50-56 age group had 14 respondents (31.1%).

Table 2. Distribution of Respondents by Gender

Gender	Frequency	
	N	%
Man	36	80.0
Woman	9	20.0
Total	**45**	**100**

Based on table 2 above, the majority of respondents were male, namely 36 people (80.0%), while there were only 9 women (20.0%).

Table 3. Distribution of Respondents Based on Education

Education	Frequency	
	N	%
Elementary School	9	20.0
Junior High School	20	44.4
Senior High School	15	33.3
College	1	2.2
Total	**45**	**100**

Based on Table 3 above, it can be explained that of the 45 respondents studied, the majority of educational attainment was junior high school, namely 20 people (44.4%), respondents with a high school/vocational high school education numbered 15 people (33.3%), while those with only an elementary school education were 9 people (20.0%). Meanwhile, only 1 person (2.2%) had pursued higher education.

Table 4. Distribution of Respondents Based on Smoking

Smoke	Frequency	
	N	%
Yes	27	60.0
No	16	40.0
Total	**45**	**100**

Based on table 4 above, it can be explained that the majority of respondents are smokers, namely 27 people (60.0%), while 18 respondents (40.0%) do not smoke.

Table 5. Distribution of Respondents Based on Workload

Workload	Frequency	
	N	%
Weight > 11	10	46.7
Mild ≤ 11	35	53.3
Total	**45**	**100**

Based on table 5. above, it can be explained that of the 45 respondents, 35 workers (53.3%) have a heavy workload (>11), while 10 workers (46.7%) have a light workload (⩽11).

Table 6. Distribution of Respondents Based on Length of Service

Length of working	Frequency	
	N	%
> 8 hours	13	28.9
≤ 8 hours	32	71.1
Total	**45**	**100**

Based on Table 6 above, it can be seen that of the 45 respondents, the majority, 32 people (71.1%), worked for less than 8 hours per day. Meanwhile, 13 people (28.9%) worked for more than 8 hours per day.

Table 7. Distribution of Respondents Based on Work Posture

Work Posture	Frequency	
	N	%
Very high risk	12	26.7
High risk	33	73.3
Total	**45**	**100**

Based on table 7 above, it can be explained that out of 45 respondents, 33 people (73.3%) have a work posture that is categorized as very high risk, while 12 people (26.7%) have a high work posture.

Table 8. Distribution of Respondents Based on Low Back Pain (LBP)

Low Back Pain(LBP)	Frequency	
	N	%
Heavy	10	22.2
Light	35	77.8
Total	**45**	**100**

Based on Table 8 above, it can be seen that of the 45 respondents, the majority experienced severe low back pain (LBP), namely 35 people (77.8%). Meanwhile, 10 respondents (22.2%) experienced mild low back pain (LBP).

Bivariate Analysis

Table 9. Relationship between Workload and Low Back Pain (LBP) Complaints

Workload	Low Back Pain (LBP) Complaints				Total		P value (α = 0.005)	OR	95% CI
	Heavy		Light						
	N	%	N	%	N	%			
Weight > 11	8	38.1	13	61.9	21	100	0.029	6,769	(1,244-36,848)
Mild ≤ 11	2	8.3	22	91.7	24	100			
TOTAL	10	22.2	35	25.9	45	100			
*p value of Fisher's Exact Test									

Based on table 9. shows that the p value = 0.029 (p>0.05), this means that the workload is related to Low Back Pain (LBP) complaints in garment tailors. The odds ratio (OR) value of 6.769 (95% CI 1.244-36.848) shows that tailors with heavy workloads have a 6.8 times greater risk of experiencing severe Low Back Pain (LBP) compared to tailors with light workloads.

Table 10. Relationship between Length of Work and Low Back Pain (LBP)

Length of working	Low Back Pain (LBP) Complaints				Total		P value (α = 0.005)	OR	95% CI
	Heavy		Light						
	N	%	N	%	N	%			
> 8 hours	6	46.2	7	53.8	13	100	0.022	6,000	

Length of working	Low Back Pain (LBP) Complaints				Total		P value (α = 0.005)	OR	95% CI
	Heavy		Light						
	N	%	N	%	N	%			
≤ 8 hours	4	12.5	28	87.5	32	100			(1,323-27,219)
TOTAL	10	22.2	35	77.8	45	100			
*p value of Fisher's Exact Test									

Based on table 10, it shows that the p value = 0.022 (p>0.05), this means that the length of work is related to Low Back Pain (LBP) complaints in garment tailors. The odds ratio (OR) value of 6,000 (95% CI: 1,323-27,219) shows that tailors who work for >8 hours per day have a 6.0 times greater risk of experiencing severe Low Back Pain (LBP) complaints compared to tailors who work ⩽ 8 hours per day.

Table 11. Relationship between Work Posture and Low Back Pain (LBP) Complaints

Work Posture	Low Back Pain (LBP) Complaints				Total		P value (α = 0.005)	OR	95% CI
	Heavy		Light						
	N	%	N	%	N	%			
Very high risk	6	50	6	50	12	100	0.013	7,250	(1,553-33,837)
High risk	4	12.1	29	87.9	33	100			
TOTAL	10	22.2	35	77.8	45	100			
*p value of Fisher's Exact Test									

Based on table 11. shows that the p value = 0.013 (p>0.05) this means that work posture has a relationship with Low Back Pain (LBP) complaints. In addition, the odds ratio (OR) value of 7,250 (95% CI: 1,553-33,837) shows that respondents with very high work postures have a 7.25 times greater risk of experiencing severe Low Back Pain (LBP) complaints compared to respondents who have high work postures.

Discussion

Workload is a term used to describe when someone works too much. This can negatively impact their performance, causing stress, fatigue, dissatisfaction, and even illness.(Aditya W. 2023)

The study showed a significant relationship between workload and Low Back Pain (LBP) complaints among tailors at the Lubuk Pakam Vocational Training Institute. Of the 33 respondents, 56.7% experienced a heavy workload, and 64.7% of them reported LBP. All respondents with a moderate workload also experienced LBP. The analysis results showed a P-value of 0.024 (P < 0.05), supporting the findings of Panjaitan (2021). The study showed a significant relationship between workload and Low Back Pain (LBP) complaints among tailors at the Lubuk Pakam Vocational Training Institute. Of the 33 respondents, 56.7% had a heavy workload, with 64.7% reporting LBP. All respondents with a moderate workload also experienced LBP. The analysis results showed a P-value of 0.024 (P < 0.05).Tailors who work more than 8 hours a day are more susceptible toLow Back Pain(LBP), according to Muslim research (2021). Working too long can also cause lower back pain(Annissa et al., 2024).Each year, many workers miss time from work due to musculoskeletal disorders,

particularly neck pain. This reduces productivity, leads to missed work, and increases medical costs.(Yani et al., 2020).

The study showed a significant relationship between working hours and the incidence of Low Back Pain (LBP) among tailors in Pekanbaru. Of the 102 respondents, 46.1% worked more than 8 hours, and 85.1% of them reported LBP. In contrast, only 29.1% of those working ≤ 8 hours experienced LBP. Chi-square analysis yielded a P-value of 0.0001 (P < 0.05), with an Odds Ratio (OR) of 13.929, confirming a relationship between working hours and LBP.In addition to sitting, standing, and dynamic postures, people often use several other work postures when performing work activities. These include bending, squatting, walking, and lifting, carrying, and pulling (Sumampouw JO 2020).

Conclusion

Based on the characteristics of respondents from the research results on 45 workers. The largest group is the age group of 20-40 as many as 21 people (46.7%), the majority of gender in the convection tailors are men as many as 36 people (80.0%), the education level of the tailors is junior high school, namely 20 people (44.4%). The majority of respondents are smokers on average as many as 27 people (60%).

Research shows a significant relationship between workload and the incidence of low back pain (LBP) in 45 garment tailors in Karawang. Workers with heavy workloads had a p-value of 0.029, indicating a 6.8-fold greater risk of experiencing severe LBP compared to workers with light workloads. Therefore, workload adjustments are necessary to reduce the risk of LBP.

Research shows a significant association between work hours and the incidence of low back pain (LBP) among garment tailors in Karawang. Workers who work more than 8 hours have a p-value of 0.022, with a six-fold increased risk of experiencing severe LBP compared to those who work less than 8 hours. Adjusting work hours is necessary to reduce the risk of LBP.

This study found a significant association between work posture and low back pain (LBP) among garment tailors in Karawang. Workers with very high-risk postures had a p-value of 0.013, indicating a 7.25-fold greater risk of experiencing severe LBP compared to those with better postures. Adjusting work posture is necessary to reduce the risk of LBP.

References

Aditya W. 2023. "*Ergonomics And Work Environment*." Pp. vi–220 in, edited by Akbar Hairil. Bandung West Java: Media Sains Indonesia.

Annissa, Annissa, Arsya Aulia, and Puji Eka Mathofani. 2024. "The Relationship Between Work Position and Low Back Pain Complaints in Tailors." *Faletehan Health Journal* 11(01):67–73.

Health Office. 2020. *West Java Health Profile 2020 West Java Provincial Health Office*.

Febyant. 2023. "*Tailors Easily Get Neck and Back Pain, So What Should I Do?*"

Herawati, Sri Wahyuningsih, and Cicilia Nony Ayuningsih Bratajaya. 2022. "Relationship Between Working Length And Working Period With Lbp Incidences In Rubber Farmers." *Journal of Nursing and Public Health Cendekia Utama* 11(3):203–12.

Kamariah, Kamariah, Arifin Arifin, and Gunung Setiadi. 2020. "Working Positions With Complaints of Lower Back Pain in Clothing Tailors." *Journal Of Environmental Health: Journal and Application of Environmental Health Engineering* 17(1):5–10. doi:10.31964/jkl.v17i1.178.

Oesman, Titin Isna, Era Irawan, and Petrus Wisnubroto. 2019. "Work Posture Analysis Using RULA to Assess the Risk Level of Upper Extremity Work-Related Musculoskeletal Disorders. Case Study of PT. Mandiri Jogja Internasional." *Jurnal Ergonomi Indonesia (The Indonesian Journal of Ergonomic)* 5(1):39. doi:10.24843/JEI.2019.v05.i01.p06.

Panjaitan, Delita Br, Raisha Octavariny, Sri Melda Br Bangun, Anggi Isnani Parinduri, and Ade Julfiani Ritonga. 2021. "The Relationship Between Workload and Length of Service with Neck Pain Complaints in Tailors at the Lubuk Pakam Vocational Training Institute in 2020." *Journal of Public Health and Nutrition (JKG)* 3(2):144–48.

Sari, Dewi Nur Puspita, Diah Muliasari, and Zahrah Maulidia Septimar. 2024. "The Relationship Between Position and Sitting Duration with the Incidence of Low Back Pain (LBP) in Workers." *Gudang Jurnal Ilmu Kesehatan* 2(2):190–95.

Sumampouw JO 2020. *Occupational Safety And Health (K3) In Maritime.* Purbalingga, Central Java: CV.Sketsamedia.

Syalsabila, Saqila, Br Silitonga, and Tri Niswati Utami. 2021. "*Relationship Between Age And Length Of Work With Complaints Of Lower Back Pain Among Fishermen In Belawan Ii Village*." 5(2).

2024. "Understanding Low Back Pain (LBP)."

Yani, Fitri, Meiza Anniza, and Krisnawan Priyanka. 2020. "The Relationship Between Work Period and Length of Work with Neck Pain in Batik Makers at the Giriloyo Batik Center." *Indonesian Journal of Ergonomics* 6(1):31–36.