Factors Associated with Subjective Complaints of Muscle Pain in Home Industry Convection Workers in the Kalinyamatan District Area

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Abstract. Muscle pain complaints can be defined as symptoms in the body that are often suffered by humans characterized by the appearance of pain or severe pain and stiffness in the muscles. The purpose of the study was to examine the relationship between individual characteristics and work factors with subjetive complaints of muscle pain in home industry convection workers in the Kalinyamatan sub-district area. This study was an observational quantitative study with a cross sectional. This research was conducted in May 2023. The population in this study were 128 home industry convection workers with a total sampling approach. This research instrument used the Nordic Body Map (NBM) questionnaire and REBA Worksheet. Bivariate analysis was performed using rank spearmen correlation test and chi-square test. Based on the results of the study showed a relationship between subjective complaints of muscle pain with age (p-value = 0.001), work duration (p-value = 0.001), and work posture (p-value = 0.001) in home industry convection workers in the Kalinyamatan sub-district area. There was no relationship between the variables of gender (p-value = 0.155), body mass index (p-value = 0.508), and working period (p-value = 0.703) in home industry convection workers in the Kalinyamatan sub-district area. The conclusion of this study is that individual characteristics (age) and work factors (work duration, and work posture) have a relationship with subjective complaints of muscle pain in home industry convection workers in the Kalinyamatan sub-district area. Whereas gender, body mass index, and working period have no relationship to subjetive complaints of muscle pain in home industry convection workers in the Kalinyamatan sub-district area.

Keywords: *Keyword1; Keyword2; Keyword3*

1 Introduction

The informal sector is still the sector that dominates industry in Indonesia.(Harwanti et al., 2018) Year after year the number of the informal sector continues to increase. According to the Central Statistics Agency (BPS), in 2021 there will be 77.9 million people working in the informal sector. This number increased by 0.3% from 2020, which

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which still amounted to 77.68 million people. The informal sector is not well organized, making these conditions very risky for workers, which can cause work-related illnesses. One of the diseases caused by work is musculoskeletal problems. One of the musculoskeletal complaints that often affects workers is complaints ranging from mild to very severe in several parts of the body or muscles (Harwanti et al., 2018). Based on the data and information center of the Indonesian Ministry of Health (2015), the incidence of occupational diseases in the last four years has experienced a significant increase and decrease, namely 57,929 cases, 60,322 cases, 97,144 cases, and decreased to 40,694 cases in the last year.(Kemenkes RI, 2015) Regarding the case data, it can be said that the occupational health situation in Indonesia is not yet good. Many workers are not aware of the diseases caused by the activities they carry out at work. Unergonomic work attitudes are prone to causing occupational diseases, disorders that can occur such as problems with muscle pain or Musculoskeletal disorders (MSDs).(Rachmat et al., 2019)

Complaints of muscle pain or Myalgia are part of the MSDs disorder. According to The Labor Force Survey, from 2020 to 2021 there were 0.5 million workers who suffered from musculoskeletal disorders due to work.(Health and Safety Executive, 2020) Other data from the World Health Organization (WHO) in 2018 explains that the prevalence of muscle pain disorders (myalgia) is around 50-62% of the total population in the world and often attacks people living in industrialized countries.(Arwinno, 2018) According to examinations carried out by health workers in Indonesia, the rate of musculoskeletal disease is 11.9% and according to the symptoms that appear, the rate of musculoskeletal disease reaches 24.7%.(Sahara & Pristya, 2020)

There are three factors that can cause Muculoskeletal complaints, namely risk factors from the work environment, risk factors from individuals or workers and factors from work. Factors arising from work consist of work posture, work load, and duration.(Enviscience & Science, 2019) Factors from individual or worker characteristics such as worker's length of service, age, worker's smoking habits, worker's gender, worker's exercise habits. Improper body posture accompanied by a chair that is not ergonomic can aggravate muscle disorders.(Harahap et al., 2019) Study of 9,482 workers in 12 districts and cities in Indonesia, Musculoskeletal disorders are diseases suffered by workers, namely 16%.(Muslim et al., 2021)

Subjective complaints can be interpreted as symptoms or complaints experienced by a person due to the type of work, work interactions, work equipment and work environment. The theory explained by Tarwaka (2004) explains that unergonomic work attitudes can give rise to unnatural work attitudes and cause subjective complaints.(Faktor et al., 2014) In Indonesia, this form of sewing work can be done by both individuals and convection businesses.(Rachmat et al., 2019) Sewing is a job sitting for long periods of time. Tailors are at risk of developing musculoskeletal complaints due to inappropriate sitting duration, unergonomic sitting posture and continuous sitting. These things can shape the body's posture if sitting becomes stiff and the muscle load becomes static in one point.(Sekar Rini & Triastuti, 2020)

2 Methods

The type of this research is observational research. The research method is quantitative with a cross sectional design. The population in this research is home industry convection workers located in the Kalinyamatan sub-district area. The total number of convection industries in the Kalinyamatan sub-district is 26 industries. The total number of workers in the convection industry is 128. This research instrument uses the Nordic Body Map (NBM) questionnaire and the REBA Worksheet. The data that has been collected is then processed using the SPPS application, to obtain answer distribution data, for bivariate the Spearman rank correlation test and the chi-square test are carried out.

3 Results

According to table 1, it can be seen that the majority of respondents in the category < 26 years were 124 respondents (96.9%), while respondents aged ≥ 26 years were 4 respondents (3.1%). According to table 2, it can be seen that the majority of respondents were female, namely 88 respondents (68.8%), while there were 40 male respondents (31.3%). According to table 3, the distribution of Body Mass Index (BMI) of respondents, most of the respondents were in the normal category, 69 people (53.9%). There were 6 people (4.7%) with underweight body mass index, 39 people with overweight category (30.5%), and 14 people with obesity category I (10.9%). According to table 4.4, the frequency distribution of respondents, most of them were in the <8 years category, 55 people (43%). And for the work period in the category ≥ 8 years, there were 57 people (73%). According to table 5 of the frequency distribution of respondents, it can be seen that the majority of respondents work < 34 hours a week, namely 67 respondents (52.3%), while respondents who work ≥ 34 hours a week are 61 respondents (47.7%).

Table 1. Characteristics of Home Industry Convection Workers

Baseline characteristic	Full sample	
	F (128)	%
Gender		
- Female		
	88	68.8
- Male		
	40	31.3
Body Mass Index		
- Underweight		4.7
	6	
- Normal		53.9
	69	
- Overweight		30.5
	39	

- Obesity	14	10.9
Age		
- < 26 Years	124	96.9
- ≥ 26 Years	4	3.1
Duration of work		
- < 34 Hours	67	52,3
- ≥ 34 Hours	61	47,7
Period of work		
- < 8 Years	55	43
- ≥ 8 Years	73	57

Source: Primary Data

Table 2. Work Posture Distribution

Work Posture	F (128)	%
Medium	95	74,2
High	28	21,9
Extreme	5	3,9

According to table 6, it can be seen that the majority of respondents have a working posture in the medium category, namely 95 respondents (74.2%). Meanwhile, there were 5 respondents with a very high category of work posture (3.9%) and 28 respondents with a high category of work posture (21.9%). According to table 7, it can be seen that the part or area most complained about by home industry convection workers in the Kalinyamatan sub-district area is the back with 35 respondents (27.3%) in the very painful category, 47 respondents (36.7%) in the pain category. Other body parts, namely the waist, were in the very painful category experienced by 6 respondents (46.9%), in the pain category by 60 respondents (46.9%). The lower part of the waist was in the very painful category experienced by 7 respondents (5.5%) and the pain category was experienced by 35 respondents (27.3%). The other parts of the body that home industry convection workers in the Kalinyamatan sub-district complained about were the upper neck, which was very painful, experienced by 8 respondents (6.3%), and the lower neck, which was very painful, experienced by 10 respondents (7, 8%).

Tabel 3. Subjective Complaints of Muscle Pain

Complaints	Scale									
	No Pain		Rarely Pain		Pain		Very Pain		Total	
	F	%	F	%	F	%	F	%	F	%
Upper Neck	**44**	**34,4**	**29**	**22,7**	**47**	**36,7**	**8**	**6,3**	**128**	**100**
Lower Neck	**29**	**22,7**	**43**	**33,6**	**46**	**35,9**	**10**	**7,8**	**128**	**100**
Left Shoulder	32	25	56	43,8	40	31,3	0	0	128	100
Right Shoulder	37	28,9	54	42,2	36	28,1	1	0,8	128	100
Left Arm	108	84,4	15	11,7	5	3,9	0	0	128	100
Back	**22**	**17,2**	**24**	**18,8**	**47**	**36,7**	**35**	**27,3**	**128**	**100**
Right Arm	107	83,6	12	9,4	8	6,3	1	0,8	128	100
Waist	**26**	**20,3**	**36**	**28,1**	**60**	**46,9**	**6**	**4,7**	**128**	**100**
Low Back	**45**	**35,2**	**41**	**32**	**35**	**27,3**	**7**	**5,5**	**128**	**100**
Bottom	104	81,3	19	14,8	5	3,9	0	0	128	100
Left elbow	111	86,7	15	11,7	2	1,6	0	0	128	100
Right elbow	114	89,1	13	10,2	0	0	1	0,8	128	100
Left low arm	116	90,6	11	8,6	1	0,8	0	0	128	100
Right low arm	116	90,6	11	8,6	1	0,8	0	0	128	100
Left wrist	35	27,3	51	39,8	38	29,7	4	3,1	128	100
Right wrist	36	28,1	48	37,5	40	31,3	4	3,1	128	100
Left hand	113	88,3	9	7	4	3,1	2	1,6	128	100
Right hand	115	89,8	9	7	2	1,6	2	1,6	128	100
Left Tight	124	96,9	4	3,1	0	0	0	0	128	100
Right Tight	125	97,7	3	2,3	0	0	0	0	128	100
Left knee	54	42,2	49	38,3	23	18	2	1,6	128	100
Right knee	57	44,5	41	32	29	22,7	1	0,8	128	100
Left calf	104	81,3	22	17,2	2	1,6	0	0	128	100
Right calf	105	82	22	17,2	1	0,8	0	0	128	100
Left ankle	55	43	35	27,3	36	28,1	2	1,6	128	100
Right ankle	46	35,9	40	31,3	40	31,3	2	1,6	128	100
Left sole	120	93,8	3	2,3	3	2,3	2	1,6	128	100
Right foot	121	94,5	2	1,6	2	1,6	3	2,3	128	100

Tabel 4. Bivariate Analysis

Independent Variable	Dependent Variable	Statistical test	Rho	P-Value
Age	Muscle Complaint	*Rank Spearmen*	0,341	0,001
Gender		*Chi-Square*	-	0,0155
BMI		Rank Spearmen	0,059	0,508
Length of work		*Rank Spearmen*	0,164	0,064
Duration of work		*Rank Spearmen*	0,641	0,001
Work Posture		*Rank Spearmen*	0,675	0,001

The results of statistical tests on age with subjective complaints of muscle pain show a p - value of 0.001, which means the P - value < 0.05 means there is a relationship between age and subjective complaints of muscle pain. The Rho value of 0.341 shows that the age variable has a fairly strong level of significance and is in the same direction as subjective complaints of muscle pain. The results of the chi-square statistical test above show that p value = 0.155, which means p-value > 0.05, so it can be said that there is no relationship between the gender of home industry convection workers in the Kalinyamatan sub-district area and subjective complaints of muscle pain. There is no relationship between the Body Mass Index of home industry convection workers in the Kalinyamatan sub-district area and subjective complaints of muscle pain. The Rho value of 0.059 shows that the body mass index variable has a low level of significant strength in subjective complaints of muscle pain.p-value = 0.508, which means p-value > 0.05.

The results of statistical tests on work period with subjective complaints of muscle pain show a p - value of 0.064, which means P - value > 0.05, so there is no relationship between work period and subjective complaints of muscle pain. The Rho value of 0.164 shows that the work period variable has a low level of significant strength in subjective complaints of muscle pain.

The results of statistical tests on work duration with Subjective Complaints of Muscle Pain show a p - value of 0.001, which means P - value < 0.05, so there is a relationship between work duration and Subjective Complaints of Muscle Pain. The Rho value of 0.641 shows that the work duration variable has a high level of significant strength in subjective complaints of muscle pain.

The results of the Spearman rank statistical test above show that p-value = 0.001, which means p-value < 0.05, so it can be concluded that there is a relationship between the work posture of home industry convection workers in the Kalinyamatan sub-district area and subjective complaints of muscle pain. The Rho value of 0.675 shows that the work posture variable has a high level of significant strength in subjective complaints of muscle pain.

4 Discussion

The results of statistical tests on the age variable showed that there was a correlation between age and subjective complaints of muscle pain. MSD complaints will increase with age. Most people experience complaints of MSD at the age of 30 years and increasingly at the age of 40 years and above at the age of 35 years, most people experience the first episode of complaints back.(Devi et al., 2017). This is in line with research conducted by Arifianto et al. (2019) found that there was a relationship between age and the number of cases of lower back pain that occurred among industrial convection workers in Mangkang. According to research conducted on convection workers in Mangkang, age is the main risk factor because increasing age causes bone generation to occur, which reduces the stability of muscles and bones. Thus, the older a person is, the greater the likelihood of experiencing a decrease in bone elasticity, leading to musculoskeletal signs, which begin to appear at the age of thirty.(Arifianto et al., 2017)

The results of the chi-square statistical test showed that there was no relationship between the gender of home industry convection workers in the Kalinyamatan subdistrict area and subjective complaints of muscle pain. The results of this research are in line with research conducted by Hanggana Sekar Rini (2020) that in her research there was no relationship found between gender and the incidence of low back pain in convection tailors.(Sekar Rini & Triastuti, 2020) And it is not in accordance with NIOSH findings in 1997, which stated that women more often complained of pain. This is due to the fact that the proportion of women's and men's work is the same, so the body is more accustomed and trained.(Nanda Anisa Fahmiawati, Anissatul Fatimah, 2002). Meanwhile, research conducted by Hari Syaputra et al (2022) stated that there was no correlation between gender and complaints of low back pain by tailors in Medan Baru district. In research conducted by Sherli Shobur et al (2019) it was also stated that gender was not related to complaints of musculoskeletal disorders (MSDs). The results showed that there is no relationship between gender and MSD because men and women both experience MSD disorders depending on what they do at work and the workload they bear.

The results of bivariate analysis showed that there was no relationship between body mass index and subjective muscle pain complaints. This is due to the fact that respondents know that their bodies can rest if they are tired and do not divide work systems, so their work processes are the same as normal-bodied people. The results of this study are in line with research by Reno Hasyim (2019) which means there is no relationship between BMI and LBP in convection tailors. It is known that BMI can be used to measure body mass index, but the results are imperfect when used on individuals with large muscle mass. A person who has significant muscle mass will gain significant weight without an increase in height, which means their BMI will be greater. Because people with large muscle mass usually also have strong back and waist muscles, complaints of LBP are very rare.(Hasyim & Triastuti, 2019)

The results of statistical tests on work period with subjective complaints of muscle pain show that there is no relationship between work period and subjective complaints of muscle pain. The Rho value of 0.164 shows that the work period variable has a strong level of significant strength in subjective complaints of muscle pain. This research is in line with an ergonomic risk analysis of complaints of muscle disorders (MSDs) among convection workers in the Kebon Pedes sub-district, Bogor City in 2018 by Rubi Ginanjar et al. There is no relationship between length of service and MSD complaints, according to the results of statistical test analysis, with a sig value = 0.202. Apart from that, research conducted by Hari Syaputra et al in 2022 stated that there was no relationship between length of work and complaints of Low Back Pain in tailors in Medan Baru district. A tailor with a relatively long working period but who always works with good posture can prevent complaints of low back pain.(Syaputra et al., 2022) Because experience influences a person's disciplinary attitude, NPB rarely occurs in employees with more than 8 years of service. This is due to the fact that employees with a long period of service have been able to adapt to their work activities. The experience and skills possessed by employees will reduce the number of illnesses caused by the workplace. The amount of time spent at the workplace in question is associated with an increased risk of occupational disease.(Ferusgel et al., 2019)

Based on the results of statistical tests on the work duration variable with subjective complaints of muscle pain, it shows that there is a relationship between work duration and subjective complaints of muscle pain. This research is in line with research conducted by Sherli Shobur et al in 2019, from statistical results with the Spearman correlation test which shows that there is a correlation between length of work and musculoskeletal disorders (MSDs) in ikat workers in Tuan Kentang Village, Palembang City in 2019. There is a correlation between work and rest time must be done to reduce the risk of MSDs because the time required to do work is related to the risk.(Shobur et al., 2019) The results of research by Hanggana Sekar Rini in 2020 also showed that sitting time had a significant relationship with LBP in convection tailors. From interviews with several workers, home industry convection workers do not have holidays. Working hours start from 08.00 to 16.00. The duration of work per week is uncertain due to overtime hours which are usually carried out to meet production targets and exceed the normal working hours limit to produce a minimum of 150-200 pieces of shirts and trousers in 1 day. Some respondents worked for hours that did not meet the requirements (>40 hours/week) and did not take sufficient breaks at lunch time. This can lead to an increase in skeletal muscle workload due to an imbalance in work duration and rest time.

Based on the Spearman rank statistical test table, it can be concluded that there is a relationship between the work posture of home industry convection workers in the Kalinyamatan sub-district area and subjective complaints of muscle pain. In line with research conducted by Nuryanti Irawati et al. in 2020, this research found that there was a relationship between work attitudes and musculoskeletal disorders. The riskier the tailor's work behavior, the higher the risk of experiencing musculoskeletal disorders. Static work and work behavior that can cause work fatigue and musculoskeletal complaints should be avoided. Static work can cause disease and permanent damage,

especially to muscles.(Niarvi, 2020). The results of this research are also strengthened by research conducted by Shalsa Devira et al in 2021 which said the same thing, namely that there is a relationship between work posture and complaints of Low Back Pain. In sewing jobs run by family businesses, many people have awkward postures. This happens because tailors ignore their body position when sewing. They didn't seem to notice and thought it was trivial. Convection workers often experience MSD complaints due to unergonomic work postures or body positions when working and repetitive work. This can cause injury or shock to the soft tissue causing major injury which is then expressed as pain or tingling, soreness, or muscle weakness. Workers in the home convection industry are expected to have a comfortable position and reduce complaints of muscle pain by identifying and providing adequate rest. To achieve this goal, workers are advised to work in an ergonomic sitting position equipped with muscle stretching.

5 Conclusion

The conclusion of this research is that individual characteristics (age) and work factors (work duration and work posture) have a relationship with subjective complaints of muscle pain in home industry convection workers in the Kalinyamatan sub-district area. Meanwhile, gender, body mass index, and length of service have no relationship to subjective complaints of muscle pain in home industry convection workers in the Kalinyamatan sub-district area. Workers are expected to stretch before and after work and be able to regulate work duration with rest periods. Apart from that, workers are advised to adjust their position when sewing, so that workers feel comfortable and minimize the risk of complaints of muscle pain.

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Conflicts of Interest

"The authors declare no conflict of interest."

References

Arwinno, L. D. (2018). Keluhan Nyeri Punggung Bawah pada Penjahit Garmen. *Higeia Journal Of Public Health Research And Development*, *2*(3), 406–416.

Devi, T., Purba, I., & Lestari, M. (2017). Risk Factors Of Musculoskeletal Disorders (MSDs) Complaints On Rice Transportation Activities At PT. Buyung Poetra Pangan Pegayut Ogan Ilir. *Jurnal Ilmu Kesehatan Masyarakat*, *8*(2), 125–134. https://doi.org/10.26553/jikm.2016.8.2.125-134

Enviscience, J., & Science, E. (2019). Hubungan Indeks Massa Tubuh dan Masa Kerja dengan Keluhan Musculoskeletal pada Pekerja Instalasi Binatu di Rumah Sakit X. *Jurnal EnviScience (Environment Science)*, *3*(2), 0–3.

Faktor, A., Berhubungan, Y., Kekambuhan, D., & Paru, T. B. (2014). Hubungan Antara Sikap Kerja Duduk dengan Keluhan Subyektif Nyeri Punggung Bawah pada Pekerja Pembuat Terasi Di Tambak Rejo Tanjung Mas Semarang. *Unnes Journal of Public Health*, *3*(1), 1–10.

Ferusgel, A., Anjanny, A., & Siregar, D. M. S. (2019). Keluhan Musculoskeletal Disorders (MSDs) pada Pekerja Pengguna Komputer Di badan Pusat Statistik Provinsi Sumatera Utara. *Jurnal Kesehatan Global*, *2*(1), 47. https://doi.org/10.33085/jkg.v2i1.4068

Harahap, P. S., Marisdayana, R., & Al Hudri, M. (2019). Faktor-faktor yang berhubungan dengan keluhan Low Back Pain (LBP) pada pekerja pengrajin batik tulis di Kecamatan Pelayangan Kota Jambi Tahun 2018. *Riset Informasi Kesehatan*, *7*(2), 147. https://doi.org/10.30644/rik.v7i2.157

Harwanti, S., Ulfah, N., & Nurcahyo, P. J. (2018). Faktor-Faktor Yang Berpengaruh Terhadap Low Back Pain (Lbp) Pada Pekerja Di Home Industri Batik Sokaraja Kabupaten Banyumas. *Jurnal Kesmas Indonesia*, *10*(2), 109–123.

Hasyim, R. L., & Triastuti, N. J. (2019). Hubungan Usia, Masa Kerja, Merokok Dan Imt Dengan Kejadian Low Back Pain (Lbp) Pada Penjahit Konveksi. *Publikasi Ilmiah UMS*, *2*, 388–396.

Health and Safety Executive. (2020). Health and safety at work Summary statistics for Great Britain 2020. *Macbeth*, 21–22.

Kemenkes RI. (2015). Situasi Kesehatan Kerja. In *Infodatin Kemenkes RI* (pp. 1—7).

Muslim, B., Devira, S., Seno, B. A., Darwel, D., & Erdinur, E. (2021). Hubungan Durasi Kerja dan Postur Tubuh dengan Keluhan Low Back Pain (Lbp) Penjahit di Nagari Simpang Kapuak Kabupaten Lima Puluh Kota. *Jurnal Sehat Mandiri*, *16*(2), 138–146. https://doi.org/10.33761/jsm.v16i2.488

Nanda Anisa Fahmiawati, Anissatul Fatimah, R. L. (2002). Faktor-Faktor Yang Berhubungan Dengan Keluhan Muskuloskeletal Disorder (MSDs) Pada Petani Padi Desa Neglasari Kecamatan Purabaya Kabupaten Sukabumi Tahun 2019. *Computer Music Journal*, *26*(2), 109. https://doi.org/10.1162/comj.2002.26.2.109

Niarvi, N. (2020). Hubungan Antara Status Gizi, Masa Kerja dan Sikap Kerja Dengan Gangguan Muskuloskeletal Pada Penjahit di Jawa Barat. *Jurnal Unair JPH RECODE*, *4*(1), 14–27.

Rachmat, N., Utomo, P. C., Sambada, E. R., & Andyarini, E. N. (2019). Hubungan Lama Duduk dan Sikap Duduk terhadap Keluhan Nyeri Punggung Bawah pada Penjahit Rumahan Di Kecamatan Tasikmadu. *Journal of Health Science and Prevention*, *3*(2), 79–85. https://doi.org/10.29080/jhsp.v3i2.204

Sahara, R., & Pristya, T. Y. (2020). Faktor Risiko yang Berhubungan dengan Kejadian Low Back Pain (LBP) pada Pekerja: Literature Review. *Jurnal Ilmiah Kesehatan*, *19*(3), 92–99.

Sekar Rini, H., & Triastuti, N. J. (2020). Hubungan Jenis Kelamin, Lama Duduk, Konsumsi Air Putih Dan Olahraga Dengan Kejadian Lbp Pada Penjahit Konveksi. *Proceeding Book Call for Paper Thalamus: Medical Research For Better Health*, 178–190.

Shobur, S., Maksuk, M., & Sari, F. I. (2019). Faktor Risiko Musculoskeletal Disorders (MSDs) pada Pekerja Tenun Ikat di Kelurahan Tuan Kentang Kota Palembang. *Jurnal Medikes (Media Informasi Kesehatan)*, *6*(2), 113–122. https://doi.org/10.36743/medikes.v6i2.188

Syaputra, H., Nyorong, M., & Utami, T. N. (2022). Hubungan Faktor Individu Dan Postur Kerja Dengan Keluhan Low Back Pain Penjahit Kecamatan Medan Baru. *MIRACLE Journal*, *2*(1), 19–29. https://doi.org/10.51771/mj.v2i1.254

Harwanti S, Ulfah N, Nurcahyo Pj. Faktor-Faktor Yang Berpengaruh Terhadap Low Back Pain (Lbp) Pada Pekerja Di Home Industri Batik Sokaraja Kabupaten Banyumas. J Kesmas Indones. 2018;10(2):109–23.