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Analysis and Identification of Work Posture to Complaints of Musculoskeletal Disorders (MSDs) with REBA Method (Case Study at CV. Sumber Sari, Jember Regency)

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Abstract— **This study discusses the analysis of work posture on all activities of workers who produce coco fiber in CV. Sumber Sari is located in Lembengan Village, Jember Regency. The production processes that are currently operating are the jockey, drying, sieving, and pressing processes. Work activities are carried out repeatedly, causing complaints to workers. These complaints arise due to non-ergonomic posture causing pain in several parts of the body felt by workers. The purpose of this study was to determine the level of risk and the percentage of complaints experienced during the production process. The methods used are the Standard Nordic Questionnaire (SNQ) and the Rapid Entire Body Assessment (REBA). The results of the research from the SNQ questionnaire on the manufacture of coco fiber, the body segments of workers mostly experience complaints on the back, waist and thighs. Research using the REBA method has a very high level of risk in jockey, sieving, and pressing workers (A4 and A5).**

Keywords— *musculoskeletal disorders, working posture, SNQ, REBA*

I. INTRODUCTION

Medium-scale industry is a field that has great potential for the sustainability of national development. In this case, the medium industry has the function of absorbing labor and reducing unemployment, although not on a large scale. However, medium-sized industries still rely on human labor to carry out most of their production activities. Most of the work is done manually in certain positions, for a long time, and with the wrong working posture, which causes uncomfortable conditions [1, 17].

Currently the work process that operates in CV. Sumber Sari focuses on manufacturing coco fiber which includes a jockey section with a total of 4 workers, a sifting section with a total of 5 workers, a drying section with a total of 17 workers, and a pressing section with a total of 2 workers. Prior to conducting research on this industry, preliminary observations were made

by conducting interviews with workers regarding complaints that were felt during the activity. The jockey and sifting workers experience complaints on their back, waist and arms. Then the workers in the drying section experienced complaints on their shoulders and hands. Next, the workers in the pressing section experienced complaints about their thighs. Factors that cause complaints at that point in the body occur because of activities that are carried out repeatedly, excessive pressure or stretching of muscles, as well as individual and environmental factors. If the impact is still ignored, the bad possibility that will occur will cause a more serious injury and trigger a complaint of musculoskeletal disorders.

The results of preliminary observations show that most of the workers' work postures are at a moderate risk level which requires further investigation and changes taking action. The part of the worker's body that feels the most complaints is the back. Complaints of Musculoskeletal disorders, if not handled immediately, will disturb the concentration of workers at work. The efforts that can be made to avoid complaints of musculoskeletal disorders are correcting work postures that are not ergonomic.

Steps that can be taken to evaluate the factors that affect the process of making coco fiber in order to achieve safety and comfort at work are to identify and analyze complaints of pain and work posture in workers. The method used to determine the high number of complaints of MSDs (Musculoskeletal Disorders) is using the SNQ questionnaire (Standard Nordic Questionnaire) and using the REBA (Rapid Entire Body Assessment) method for posture assessment in all workers. This study was conducted to determine the complaints felt by workers and the level of risk to the work posture of workers so that it will reduce complaints of MSDs (Musculoskeletal Disorders) felt by workers and does not reduce work performance and interfere with work.

II. METHODOLOGY

A. Standard Nordic Questionnaire (SNQ)

The Standard Nordic Questionnaire (SNQ) is a tool that can identify the parts of the muscle that are experiencing complaints with levels of complaints ranging from No Pain, Moderate Pain, Pain, and Very Pain. The reliability of this questionnaire has been shown to be acceptable. The special characteristics of work stress are reflected in the frequency of responses to the questionnaire. The results of this questionnaire are intended to find out the body parts of workers who experience complaints when carrying out their activities. Dissemination result data Standard Nordic Questionnaire given an assessment or weighting includes no sick (weight 0), moderate sick (weight 1), sick (weight 2), very sick (weight 3).

After recapitulating the SNQ weight scores, the data changes into percentages. To get the percentage, it can be searched by the formula:

$$\% \text{ Complaints} = \frac{\text{Skor risiko bagian tubuh pekerja}}{\text{Skor Bobot}} \times 100\%$$

B. Rapid Entire Body Assessment (REBA)

REBA (Rapid Entire Body Assessment) is one method that can be used for work posture analysis. The REBA method was developed by Dr. Sue Hignett and Dr. Lynn Mc Atamney who are ergonomes from the University of Nottingham (University of Nottingham's Institute of Occuptaional Ergonomic). The initial stage of the method Rapid Entire Body Assessment is a record creation work activity coco fiber with videos and photos, determining the angle using the Protractor application, and determining the score based on the REBA assessment. Rapid Entire Body Assessment is a method developed in the field ergonomics which can be used quickly to assess work position or work posture starting from the neck, back, arms, wrists, and feet of workers. In the REBA method, the body segments are divided into two groups, namely group A and group B. Group A includes the back (torso), neck and legs, while group B includes the upper arms, forearms and wrists. The calculation of the REBA value that has been obtained, it can be known the level of risk and the need for actions that need to be taken to improve work on CV. Sumber Sari.

III. RESULT AND DISCUSSION

A. Influencing Complaints Musculoskeletal Disorders (MSDs)

1) Environmental factor

Environmental factors in this study are in the form of microclimate / room temperature felt by workers in carrying out their activities. For Indonesians, a comfortable temperature is in the range of 24°C - 26°C with a tolerance of 2°C - 3°C above or below the comfortable temperature. The difference in ambient temperature and body temperature that is too large causes some of the energy in the body to be used by the body to adapt to that environment. If this is not matched by an adequate energy supply, there will be a lack of energy supply to the muscles. As a result, blood circulation is less smooth, and the supply of oxygen to the muscles decreases. The process of carbohydrate metabolism is inhibited and lactic acid accumulates, which can cause muscle pain. In addition, workplace temperatures that exceed 28° and less than 18° will accelerate labor fatigue [2].

Based on the results of a study between microclimates (room temperature) and musculoskeletal complaints in workers, it was found that 17 sun-drying workers were exposed to direct sunlight because their work processes were carried out in open fields. Then 11 workers from the jockey, sieving, and pressing sections were at room temperature quite well because the process was carried out in a room with good lighting. From the results of interviews it can be seen that drying workers are very easy to experience fatigue due to sun exposure felt by workers. This is in line with the statement [3] which states that room temperature that is not properly controlled will affect the level of comfort and health problems for workers. This can accelerate the emergence of work fatigue and subjective complaints and can reduce work productivity Individual Factors

a. Age

Based on the results of the questionnaire along with the interviews that have been conducted with workers at CV. Sumber Sari obtained respondent data based on age in Table 1.

TABLE I. EMPLOYEE AGE DATA CV. SARI SOURCE

Age	Amount
< 35 years	11
> 35 years	17
Total	**28**

Data Source: Observation Primary Data (2022)

Complaint musculoskeletal disorders generally can be felt at working age but the first complaint is usually felt at the age of 35 years with the level of complaints continuing to increase with age. This is because in middle age, muscle strength and endurance begin to decrease so that the risk of developing muscle complaints increases [3]. When a person reaches 60 years of age, muscle strength will decrease by 20%, so there is a risk of complaints musculoskeletal disorders also increased [4].

Age is the length of life of the respondent in years calculated from birth until the research is conducted. Age > 30 years is an adult age group, while age < 30 years is a group of young adults who are expected to be more efficient in carrying out a job. From the results of research conducted on CV workers. Sumber Sari showed that 3 out of 28 respondents in pressing and drying workers experienced complaints musculoskeletal disorders high level with age group > 35 years. In addition, there were 14 respondents in the age group > 35 who experienced complaints musculoskeletal disorders medium level. Then 11 respondents in the age group < 35 also experienced complaints musculoskeletal disorders medium level. The results showed that respondents in the age group > 35 years obtained moderate and high level MSDs complaints, which means they have a positive relationship. However, respondents in the age group < 35 years with a moderate level

of MSDs complaints may be influenced by other factors, namely the lack of adjustment of the body to work activities.

The results of the study show that the acquisition is in accordance with the results of a study conducted by Riihimaki in Tarwaka which explains that age has a strong relationship with MSDs complaints, especially for neck and shoulder muscles [5]. In addition, this study is directly proportional to the theory put forward by Tarwaka that MSDs complaints are generally felt at the age of 35 - 65 years. The acquisition of moderate MSDs complaints in the age group < 35 years often occurs because age is one of several individual factors that can cause MSDs complaints. In this study it can be interpreted that age is not a major factor in the occurrence of complaints musculoskeletal disorders rather there is a combination of factors, so that age cannot stand alone but there may be other individual factors that are more dominant.

b. Gender

Physiologically, women's muscle capacity is lower than that of men. Women's muscle strength is only one-third that of men's muscle strength, so gender greatly influences the level of risk musculoskeletal disorders [6]. Based on the observation results, it was obtained information that the drying workers were carried out by women, but the jockey, sieving, and pressing sections were carried out by male workers. This is related to the type of work that is slightly lighter and does not involve greater muscle strength for female workers to do.

c. Smoking habit

Based on the results of interviews that have been conducted with workers at CV. Sumber Sari obtained respondent data based on the smoking habits of workers in Table 2.

TABLE II. DATA OF EMPLOYEE CIGARETTE HABITS AT CV. SARI SOURCE

Smoking Habit	Amount
Yes	6
No	22
Total	**28**

Data Source: Observation Primary Data (2022)

Based on data from table 4.3, it is known that 6 respondents had a moderate smoking habit, while the majority of respondents who did not have a smoking habit were 22 respondents with a moderate (19 workers) and high (3 workers) complaint level. The number of respondents who did not smoke was based on the number of female respondents who were more than male who generally tended not to smoke. The results showed that smoking habits with MSDs complaints had a positive relationship. However, respondents who do not have smoking habits with moderate and high levels of MSDs may be influenced by other factors, namely age, length of work, and others.

Based on the results of the risk level obtained, this is because a smoker can reduce lung capacity. Decreased lung capacity results in less oxygen being consumed, so that the freshness of the body decreases. Decreased physical fitness is caused when a person does work that requires exertion, then a person will easily experience fatigue due to low oxygen content in the blood which causes inhibition of carbohydrate burning, resulting in a buildup of lactic acid which eventually results in muscle pain. The MSDs complaints caused by smoking can be reduced or prevented by reducing or stopping smoking early on, as well as improving the quality of exercise so that physical fitness also increases.

The results of other studies show that people who have smoking habits are more at risk of suffering from back pain than non-smokers. This is because coughing due to smoking can increase pressure on the stomach and cause tension in the spine. The results of Boshuizen's study in Tarwaka state that there is a significant relationship between smoking habits and waist muscle complaints in jobs that require muscle exertion [5].

d. Body Mass Index

Based on the results of interviews that have been conducted with workers at CV. Sumber Sari obtained Body Mass Index in Table 3.

TABLE III. EMPLOYEE BODY MASS INDEX DATA AT CV. SARI SOURCE

Body Mass Index	Amount
Normal	23
Light Weight Fat	5
Total	**28**

Data Source: Observation Primary Data (2022)

Based on data from table 4.4, it is known that the majority of respondents have a normal body mass index, namely 23 respondents, while the rest have a mild level of body mass index, namely 5 respondents. In this study, body mass index (BMI) was used to assess the nutritional status of workers. The classification of nutritional status is based on the results of BMI measurements of each worker which is carried out by measuring the worker's height and weight.

This study shows the same conclusion as research conducted on aluminum iron factory workers, namely that there is no relationship between nutritional status and work fatigue and musculoskeletal complaints [7]. This is because fatigue and MSDs complaints experienced by workers do not only occur in workers who have a high BMI but also often occur in workers who have normal BMI. Anthropometric measurements of the body, such as height, weight, and body mass are factors that are very likely to cause musculoskeletal complaints in workers. These three factors have a relatively small effect on the occurrence of musculoskeletal complaints [6].

e. Years of Service

The period of work is the length of time starting from the first time you enter work until the research takes place. Work period is one of the risk factors that can increase the occurrence of MSDs and has a strong relationship with muscle complaints. Based on the results of observations made, it was found that 19 respondents with a working period of between 1-10 years experienced musculoskeletal complaints in the moderate category and 3 respondents in the high category. Then 6 respondents with a working period of < 1 year also experienced musculoskeletal complaints in the moderate category. Most categories of complaints experienced by

workers are caused by high workloads that exceed the lifting limit and there is no adjustment of the body to work activities in new workers so that the body's resistance is reduced and they easily experience fatigue and pain. This research is in line with Arofah's research on porters at the Gayamsari market in Semarang. Transport workers with low or high tenure have the same musculoskeletal complaints, this is because workers do work with a high ergonomic risk such as transporting goods beyond capacity so that musculoskeletal complaints can occur during low or high tenure [8].

2) Occupational Factors
a. Work Attitude

One aspect that can be considered in ergonomics is work attitude. Work attitude is the various positions of the workers' limbs during work activities. The division of work attitudes is based on body position and movement.

Natural work attitude is a work attitude that causes the position of a part of the body to move away from its natural position, for example the movement of the hand up, the back too bent, or the head up. The farther the position of the body part is from the body's center of gravity, the higher the risk of developing skeletal muscle complaints. Unnatural work attitudes occur because the characteristics of task demands, work tools and work areas are not in accordance with the capabilities and limitations of work [9].

The results showed that the work attitude of all respondents was included in the bad or not good category. This can be proven by the results that there were 25 respondents (5 jockey workers, 4 sieving workers, 1 pressing worker, and 15 drying workers) experiencing an MSDs risk level in the medium category and 3 respondents (1 pressing worker and 2 drying workers) experiencing a moderate level of MSDs risk. risk of MSDs in the high category. This risk level can be interpreted that there is a significant relationship between work attitudes and MSDs complaints.

Based on the results of the risk level obtained, this is due to several unnatural body movement factors in most work activities such as lifting hand movements, bending the back too forward, squatting position, or lifting the head so that it will increase the risk of injury to the musculoskeletal department. Meanwhile, working in a squatting position for pressing workers can cause fatigue in the abdominal and back muscles, and increase pressure on the spine. This research is in accordance with research conducted on workers at UD Sumber Barokah Sidoarjo, East Java that work attitude can cause work fatigue in employees and can cause musculoskeletal complaints [10]. Likewise with research conducted on tailors at Pasar 46 Manado that there is a relationship between work attitude and the number of perceived musculoskeletal complaints. The more risky the work attitude is, the higher the risk of developing musculoskeletal complaints [11].

b. Repetitive Activity

Repetitive activity or repetitive activity is an activity that is carried out continuously such as hoeing, splitting wood, lifting and transporting goods. Repetitive work can cause pain due to the accumulation of metabolic waste in the muscles.

Muscles will weaken and spasms are common in the hands or forearms when doing repetitive activities, rough and strong movements including high-risk jobs [5].

The results showed that all work activities in CV. Sumber Sari is done with the same movements repeatedly so that workers are very susceptible to experiencing muscle system disorders or known as complaints of musculoskeletal disorders. This condition is also found in all workers where workers will rest according to break hours, namely at 09.00 and 12.30 with a total break time of 1 hour. Workers will not stop working if they have not entered the specified break time. This could be the cause of the results that 25 respondents experienced MSDs risk levels in the moderate category and 3 other respondents experienced MSDs risk levels in the high category. According to research [12] repetitive work or repetitive movements are the main factors causing the increase in prevalence musculoskeletal disorders. In research [13] also explained that the repetition movement factor is a factor that influences the occurrence of MSDs complaints in workers.

c. Work load

The human body needs to carry out daily work activities to move the body to achieve a productive life. When working, the body will receive loads from outside the body. It can be said that every job is a burden for those concerned. This burden can be either physical or mental [14].

Assessment of workload on workers in CV. Sumber Sari is done by observing work activities. Workers in this industry start with jockey workers who carry out activities such as picking cofiber accompanied by bending and moving positions of coco fiber with a load < 5 kg into the conveyor. Even though the activity is carried out in the shade, the activity is carried out repeatedly (repetitive movement) so that it is very draining of workers. Then on the sieving workers who carry out activities such as taking coco fiber by squatting and moving coco fiber with a load of 5-10 kg. Even though these activities are carried out in the shade, there is also repetition of movements so that it has a heavy workload. Next to the drying workers who carry out work activities such as spreading coco fiber with a load < 5 kg (activity 1) and move coco fiber which have been dried in the sun with a load of 5-10 kg (activity 2), and the working environment is quite hot because the drying process is carried out in an open field. Heat exposure can place an additional burden on blood circulation as it has to carry oxygen to the working part of the muscle. Besides that, blood also has to carry heat from inside the body to the surface of the skin [14]. From this activity it can be seen that drying workers have a heavy workload level. Then in the last work process, namely the pressing part with work activities such as taking coco fiber with a load of 5-10 kg, insert coco fiber, binding coco fiber, issued coco fiber from the machine with a load of 90-100 kg, and lifting results press coco fiber with a load of 90-100 kg. This activity is also known to have a high level of workload.

Based on the description above, it can be seen that all work activities in CV. Sumber Sari has a heavy workload. This can be proven by the results that 25 respondents experienced a moderate risk level of MSDs and 3 other respondents experienced a high category of MSDs risk. This risk level can

be interpreted that there is a significant relationship between workload and MSDs complaints. The results of this research are in accordance with the theory which states that there is a significant relationship between workload and Musculoskeletal Disorders to rice farmers in Ahuhu Village in 2017 [15].

    d.   Length of Work

Length of work is the time used to do work. The results showed that workers are at normal time (8 hours). However, it is not uncommon for workers to choose overtime to increase income each month. This can be a trigger for the occurrence of criteria for abnormal length of work (> 8 hours) resulting in complaints Musculoskeletal Disorders. This can be proven by the results that 25 respondents experienced a moderate risk level of MSDs and 3 other respondents experienced a high category of MSDs risk. This risk level can be interpreted that there is a significant relationship between length of work and MSDs complaints. If working hours exceed the provisions, things such as decreased work speed, health problems will be found which can result in low levels of productivity. This is in line with the results of research on the risk of occurrence Musculoskeletal Disorders in workers who have worked > 8 hours, it is 1,552 times greater than workers with < 8 hours of work [16].

B. Standard Nordic Questionnaire (SNQ)

1) Jockey

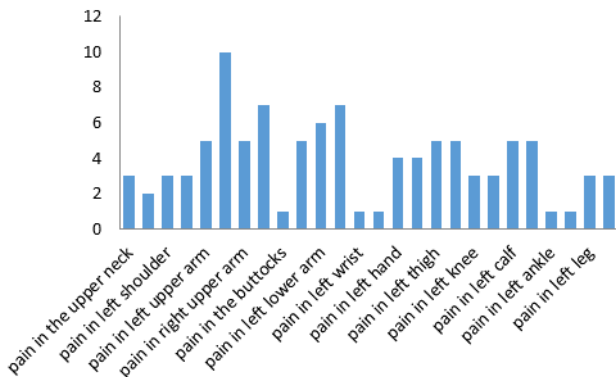The overall distribution of complaints felt by jockey workers can be seen in Fig. 1.

Fig. 1. Jockey Section Employee Complaints

After calculating the percentage of complaints of sifting workers as a whole, it was obtained that workers experienced the biggest complaints on parts of the body including the back (9.52%), waist (7.48%), right forearm (6.80%), and forearm left (6.12%). The biggest complaints felt by workers can be caused by several factors that influence MSDs complaints and the wrong work position. The factors that influence MSDs complaints here can include age, smoking habits, years of service, work attitude, repetitive activities, and others. Then the wrong working position can be seen in work activities carried out in a bent position forward (96.3°) causing pain in the back and waist. In addition, pain was found in the right forearm and left forearm (6.12%) which could be caused by work activities

such as taking cofiber use both hands to enter into the conveyor causing pain in that part.

2) Sieving

The overall distribution of complaints felt by workers in the screening section can be seen in Fig. 2
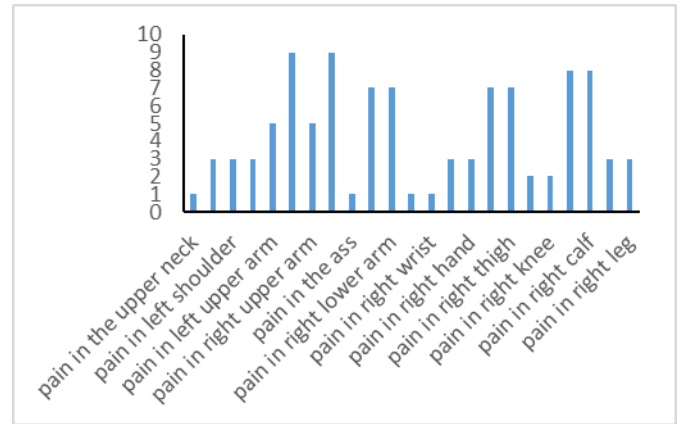

Fig. 2. Sieving Section Employee Complaints

After calculating the percentage of complaints of sifting workers as a whole, it was found that workers experienced the biggest complaints on parts of the body including the back (8.93%), waist (8.93%), left calf (8.04%), right calf (8.04%), right forearm (7.14%), left forearm (7.14%), left thigh (7.14%), and right thigh (7.14%). The biggest complaints felt by workers can be caused by several factors that influence MSDs complaints and the wrong work position. The factors that influence MSDs complaints here can include age, smoking habits, years of service, work attitude, repetitive activities, and others. Then in the wrong working position can be seen in work activities carried out in a squatting position with the body bent with both hands raised cofiber pure which has been completed in the screening process. The bent position causes workers to feel pain in the back and waist. Then product cofiber The rope that is lifted causes the worker to feel pain in both forearms. Meanwhile, the squatting position with bent legs causes workers to feel pain in the calves and thighs.

3) Drying

The overall distribution of complaints felt by workers in the drying section can be seen in Fig. 3.
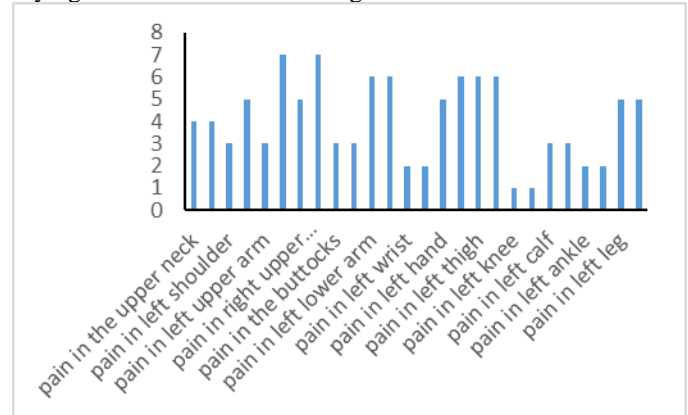

Fig. 3. Complaints from Drying Section Workers

After calculating the percentage of complaints of drying workers as a whole, it was found that workers experienced the biggest complaints on body parts including the back (7.00%), waist (7.00%), right hand (6.03%), right forearm (5.84%), left forearm (5.64%), left thigh (5.64%), right thigh (5.64%), left hand (5.45%). The biggest complaint that causes a high level of MSDs complaints in drying workers can be caused by several factors that influence MSDs complaints. The influencing factors may include age, gender, smoking habits, years of service, work attitude, repetitive activities, and others. Meanwhile, the drying division carries out its work activities in a slightly safer position than other workers, namely jockey, sieving and pressing workers. However, it does not rule out the possibility of obtaining high-level MSDs complaints also caused by wrong working positions such as the activity of the working position, the back is slightly bent with walking activities and the movement of both hands (left hand carrying coco fiber and right hand spread coco fiber for drying) accompanied by repetitive movements.

4) Pressing

The overall distribution of complaints felt by workers in the pressing section can be seen in Fig. 4.
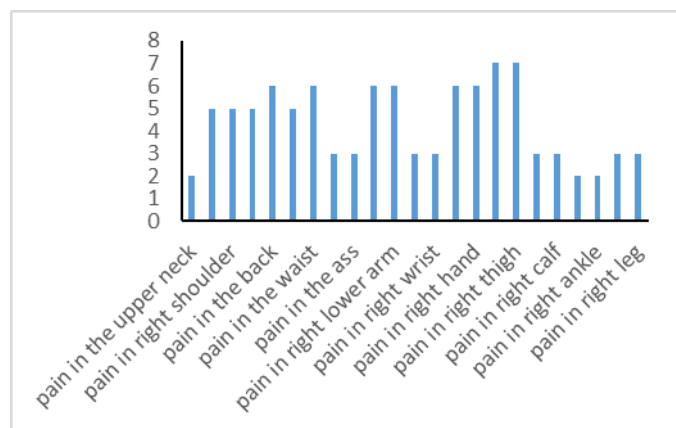

Fig. 4. Complaints from Workers in the Pressing Section

After calculating the percentage of pressing workers' complaints as a whole, it was found that workers experienced the biggest complaints on parts of the body including the left thigh (6.82%), right thigh (6.82%), back (5.68%), waist (5.68%), left forearm (5.68%), right forearm (5.68%), left hand (5.68%), and right hand (5.68%). The biggest complaint that causes high levels of MSDs complaints in pressing workers can be caused by several factors that influence MSDs complaints and the wrong working position. The influencing factors may include age, smoking habits, years of service, work attitude, repetitive activities, and others. Meanwhile, the wrong working position can be seen in work activities carried out such as bending work positions, lifting loads of 90-110 kg, and many bending leg positions which are done repeatedly. The bent position causes workers to feel pain in the back and waist. In addition, many hand movements are carried out by carrying loads that exceed the lifting limit, causing workers to feel pain in both hands and both forearms. Meanwhile, the squatting position with the legs bent causes workers to feel pain in the calves and thighs.

C. Rapid Entire Body Map (REBA)

Documentation of work attitudes by coco fiber manufacturing workers is carried out by taking pictures of each activity in each process. The following is an explanation of the pattern of work activities along with the determination of the angle in each work process.

TABLE IV. WORK ACTIVITY PATTERNS AND ANGLE DESCRIPTIONS IN EACH WORK PROCESS

Postur Tubuh	Keterangan
Jockey Take Coco Fiber to put on the conveyor 	a. Movement of the neck bending forward body with an angle of 25.5° (Score 2) b. Bent back position forward with an angle of 96,3° (Score 4) c. The position of the feet does not support and forms an angle of 33.1° (Score 2 + 1) d. The upper arm swings forward at an angle of 94.1° with the arm bent (Score 4 + 1) e. The lower arm is located in front of with an angle of 19,9° (Score 2) f. Wrist position forward between 0° - 15° with rotating movement (Score 1 + 1)
Sieving Take Coco Fiber sieve results 	a. Movement of the neck bending forward body with an angle of 20.5° (Score 2) b. Bent back position forward with an angle of 86,3° (Score 4) c. The position of the feet is supported and forms an angle of 72.1° (Score 1 + 2) d. The upper arm swings forward at an angle of 102.4° with the arm bent (Score 4 + 1) e. The lower arm is located in front of with an angle of 17,1° (Score 2) f. Wrist position forward between 0° - 15° with rotating movement (Score 1 + 1)
Pressing a. Activity 1 (A 1) Take coco fiber 	a. Movement of the neck bending forward body with an angle of 18.6° (Score 1) b. Bent back position forward with an angle of 88,6° (Score 4) c. The position of the feet is supported and forms an angle of 54.2° (Score 1 + 1) d. The upper arm swings forward at an angle of 82.9° with the arm bent (Score 3 + 1) e. The lower arm is located in front of with an angle of 19,5° (Score 2)

<table>
<tr><td colspan="8">f. Position the wrist forward at an angle of 15° with a rotating movement (Score 2 + 1)</td></tr>
</table>

b. Activity 2 (A 2) Enter coco fiber into the machine 	a. Movement of the neck bending backwards body with an angle of 24.8° (Score 2) b. Bent back position forward with an angle of 12,8° (Score 2) c. The position of the feet is supported and forms an angle of 30.4° (Score 1 + 1) d. The upper arm swings forward at an angle of 112.5° with the arm bent (Score 4 + 1) e. The lower arm is located in front of with an angle of 19,3° (Score 2) f. Position the wrist forward at an angle of 15° with a rotating movement (Score 2 + 1)
c. Activity 4 (A 4) Take out coco fiber 	a. Straight neck movement with back position (Score 1) b. Bent back position forward with an angle of 59,1° (Score 3) c. The position of the feet does not support and forms an angle of 58.0° (Score 2 + 1) d. The upper arm swings forward at an angle of 111.4° with the arm bent (Score 4 + 1) e. The lower arm is located in front of with an angle of 19,9° (Score 2) f. Position the wrist forward at an angle of 15° with a rotating movement (Score 2 + 1)
d. Activity 5 (A 5) Lift coco fiber to save 	a. Movement of the neck bending backwards body with an angle of 44.2° (Score 2) b. Bent back position forward with an angle of 73,8° (Score 4) c. The position of the feet is supported and forms an angle of 33.4° (Score 1 + 1) d. The upper arm swings forward at an angle of 82.3° with the arm bent (Score 3 + 1) e. The lower arm is located in front of with an angle of 9.0° (Score 2) f. Position the wrist forward at an angle of 15° with a rotating movement (Score 2 + 1)

Data Source: Observation Primary Data (2022)

The following is the result of a recapitulation of the work posture assessment that has the highest REBA score in each work process.

TABLE V. RECAPITULATION OF WORK POSTURE ASSESSMENT

Torsi	Jockey	Sieving	Pressing			
			Activity 1	Activity 2	Activity 4	Activity 5
Neck	2	2	1	2	1	2
Torso / back	4	4	4	2	3	4
Feet	3	3	2	2	3	2
Table A posture values	7	7	5	4	5	6
Load assessment	0	1	1	1	2	2
SCORE A	**7**	**8**	**6**	**5**	**7**	**8**
Upper arm	5	5	4	5	5	4
Lower arm	2	2	2	2	2	2
Wrist	2	2	3	3	3	3
Table B posture values	8	8	7	8	8	7
Grip value	0	1	1	1	1	2
SCORE B	**8**	**9**	**8**	**9**	**9**	**9**
Activity value	1	1	1	1	1	1
Value table C	10	10	9	9	10	10
REBA score	**11**	**11**	**10**	**10**	**11**	**11**

Data Source: Observation Primary Data (2022)

Based on the results of the data processing shown in Table 5 it is known that the jockey workers obtained a REBA score of 11. This could indicate that the activity of taking coco fiber to be loaded onto the conveyor poses a very high ergonomic hazard to musculoskeletal disorder so it needs a change right now. Then the sieving workers also obtained a REBA score of 11. This could indicate that the activity of taking coco fiber which has been sieved by the sieving workers has a very high ergonomic hazard to musculoskeletal disorder so it needs a change right now.

Then on the pressing worker in the first activity (take coco fiber) and second (insert coco fiber into the machine) a REBA score of 10 is obtained. This can indicate that the first and second activities carried out have a high ergonomic hazard to musculoskeletal disorder until need change urgently. Furthermore, in the fourth activity (removing coco fiber which has been pressed) and the fifth (lifting coco fiber to be stored) a REBA score of 11 was obtained. This could indicate that both activities have a very high ergonomic hazard to musculoskeletal disorder so it needs a change now too. Based on this description, work activities carried out have a high to very high risk level due to work activities referring to awkward positions such as bending, squatting, very large lifting loads, and bending legs repeatedly so that workers will easily experience fatigue and pain. The results of the research that has been carried out are in line with research which states that a high REBA score is caused by welding workers not understanding the risks of bending and squatting.

CONCLUSIONS

Based on the results of research conducted on workers at CV. Sumber Sari can be concluded that:

1. The highest percentage of complaints using the SNQ questionnaire for jockey, sifting and drying workers refers to the back and waist. Then the pressing workers have the biggest complaints on the two thighs, back and waist.

2. Factors that influence MSDs complaints include environmental factors (microclimate), individual factors (age, gender, smoking habits, Body Mass Index, years of service), and work factors (work attitude, repetitive activities, workload, length of work).

3. The results of working posture with the REBA method for jockey, sifting, pressing workers (A4 and A5) have a very high risk level. Then the pressing workers (A1 and A2) have a high risk level, and the drying and pressing workers (A3) have a medium risk level.

4. Improve your working position by squatting and keeping your back straight. Then the hazard control that can be done is in the form of:*engineering control* and*administrative control*.

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