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MANUAL MATERIAL HANDLING ANALYSISI OF WORKERS LIFTING GOODSUSING THE RAPPID UPPER LIMB ASSESSMENT (RULA) METHOD AT PT INTIPRATAMA GLOBAL SERVICE

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ABSTRACT

Manual Material Handling (MMH) Workshop in Maintenance is an activity that humans carry out every day. In this research, the qualitative method is used, which is a research method based on the philosophy of postpositivism, used for research on natural conditions of objects. Based on the results of research on the level of work posture risk among goods lifting workers at PT Intipratama Global Services when carrying out goods lifting activities, there were 5 informants who displayed the risk level of work posture ranging from medium, high and very high risk levels. Based on the results of research on the risk level of work posture at PT Intiprama Global Service when carrying out goods transport activities manually, the results of calculations were that 5 informants had a very high risk level and based on the results of the Nordic Body Map (NBM) calculations, 2 informants had complaints about the musculoskeletal system. with a very high level, 2 informants with a high level and 1 informant with a medium level.

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INTRODUCTION

Ergonomics is a science that studies the interaction between humans and machines and also the factors that influence it. Ergonomics is able to organize a work station and type of work with the capabilities of an operator (Tarwaka, 2015). The aim of ergonomics is to ensure occupational health, so that productivity can continue to be increased. When evaluating work capacity and content, what needs to be considered is physical strength consisting of work posture, working hours, influence on the environment (Oesman, 2019). The main benefits of ergonomics are a decrease in the number of work accidents, a decrease in the number of work-related illnesses, reduced work-related stress, improved productivity, improved work flow, a sense of security due to being free from injury, increased work satisfaction (Hunusalela et al., 2021)

We often see work related to MMH in work, lifting goods. MMH activities include lifting, pushing, pulling and other material handling activities without mechanical aids. If manual movement is not done ergonomically, it will cause accidents work that occurs due to damage to body tissue caused by excessive lifting loads. (Hamdy, 2020) Rapid Upper Limb Assessment (RULA) is a method in the field of ergonomics that was developed by investing and assessing the work position carried out on the body, especially in the upper part. Work-related musculoskeletal disorders are one of the most common work disabilities in industry. WMSD accounted for approximately 67% of occupational injuries and illnesses in Korea in 2019 and 29-35% in the US in 1992- 2010. costs around 40% and global compensation for work due to clumsiness or static. Posture, excessive exertion, repetitive effort, are known to be strong risk factors for developing WMSD.

In Indonesia, manual handling activities such as pushing or pulling and repetitive movements cause musculoskeletal problems, 47% of which occur due to MSDs. The main risk factors occur in adults aged 15-49 years, which is the productive age. In Indonesia in 2010 Low employment Back Pain is ranked 7th while neck pain as a movement system disorder (MSDs) is ranked 6th. Meanwhile, for manual handling work that occurred in Cikarang, MSDs complaints occurred in the upper extremities (right shoulder) at 52.8% and at the waist at 58.8%. (Laksana & Srisantyorini, 2020) Based on the results of initial observations or preliminary studies at PT Intipratama Global Services Manual Handling work, workers carry out lifting and moving goods manually with human power without assistance. Workers at PT Intipratama carry out this work with a load of approximately 10 kg per day for one person for around 8 hours, whereas if it is done together the load lifted is approximately 50 kg, and 4 out of 5 workers often complain of pain in the back of the body, specifically the back, this condition will be dangerous if done repeatedly every day without control. Based on the above background, the author conducted research with the title "Manual Analysis of Material Handling in Goods Lifting Work Using the Rappid Upper Limb Assessment (Rula) Method at PT Intipratama Global Services".

RESEARCH METHODS

In this research, the qualitative method is used, a research method based on the philosophy of postpositivism, used to examine the condition of natural objects. Where the researcher is the key instrument, the data collection technique is carried out in a triangulated (combined) manner, inductive/qualitative data analysis and the results of qualitative research emphasize meaning rather than generalization (Sugiyono, 2020). This research was conducted to determine the risk level of upper work postures and the level of complaints in the musculoskeletal system. Researchers will analyze and explain the results of this research.

RESULTS AND DISCUSSION

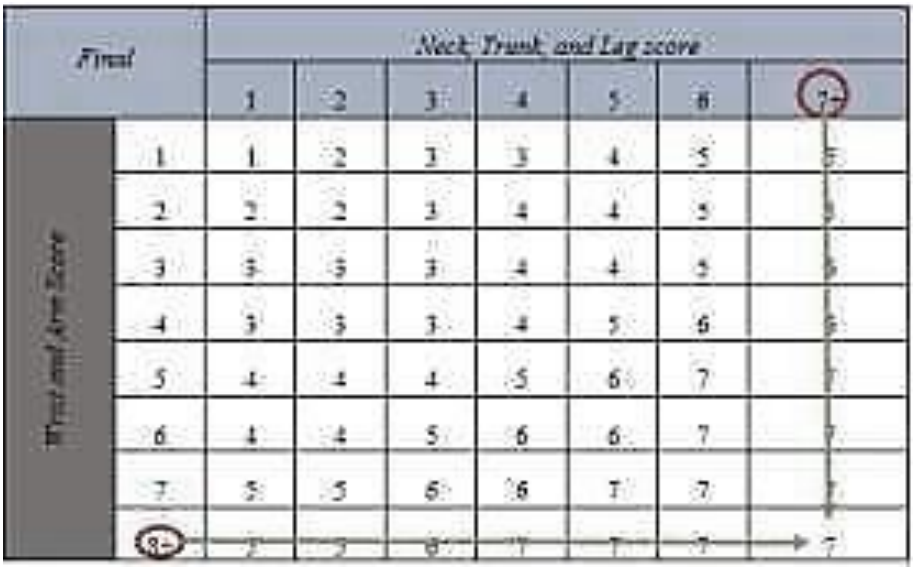
Based on the results of research on the risk level of work postures for workers lifting goods at PT Intipratama Global Services when carrying out goods lifting activities, there were 5 informants who showed the level of risk of work postures ranging from medium, high and very high risk levels with the calculation results obtained as follows. The informant stated that there were no facilities for lifting goods so that the work was carried out manually, and to be efficient in working time, workers carried out the

lifting by directly lifting goods excessively and exceeding the maximum standard object load, there was no socialization or training regarding K3, especially ergonomics. one of the factors causing workers to do work that is not in accordance with manual material handling techniques. Standard Operational Procedures (SOP) relating to manual material handling are never socialized to workers so that workers do not understand good lifting standards which causes workers to carry out work relying on physical abilities without being based on correct techniques.

Tabel 1. Informan Final Score 1

The results of scoring scores A and B are then entered in tables C and D to get scores C and D, namely 7. Because the results of scores C and D are obtained, they will be added together with the scores for muscle use and load and exertion in group A, the score for muscle use is 1 and exertion is 1. So the total score C will be 5 (total score A) + 1 + 1 = 7 (Total score C). Next, in group B, you get a muscle use score of 1 and exertion of energy is also 1. Then you get a total score of D of 6 (total score of B) +1 +1 = 8 (total score of D). So the final score is 7 with a very high risk level.

Tabel 2. Informan Final Score 2



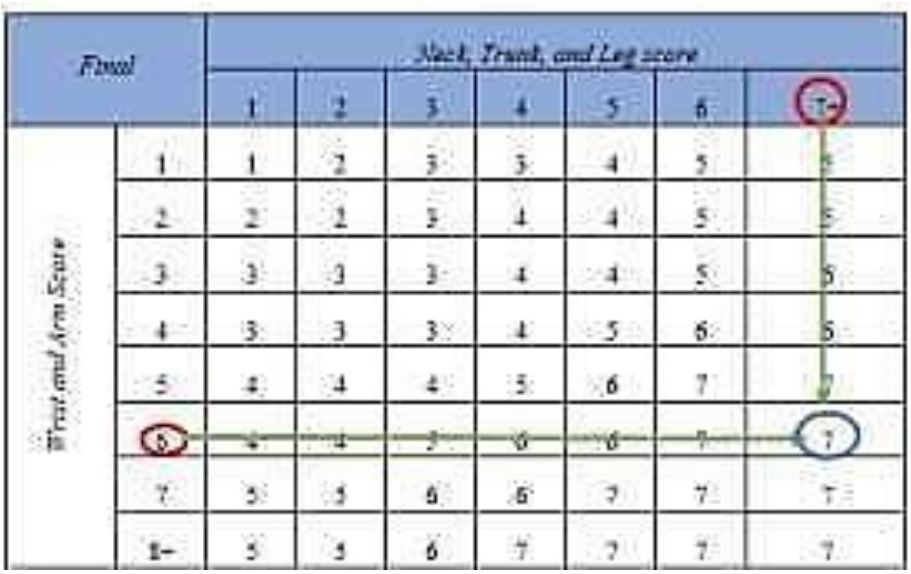
The results of scoring scores A and B are then entered in tables C and D to get scores C and D, namely 7. Because the results of scores C and D are obtained, they will be added together with the scores for muscle use and load and exertion in group A, the score for muscle use is 1 and exertion is 1. So the total

score C will be 7 (total score A) + 1 + 1 = 9. Next, in group B, a muscle use score of 1 and exertion of energy is also 1. Then the total score D will be 7 (total score B) +1 +1 = 9. So the final score is 7 with a high risk level tall.

Tabel 3. Informan Final Score 3

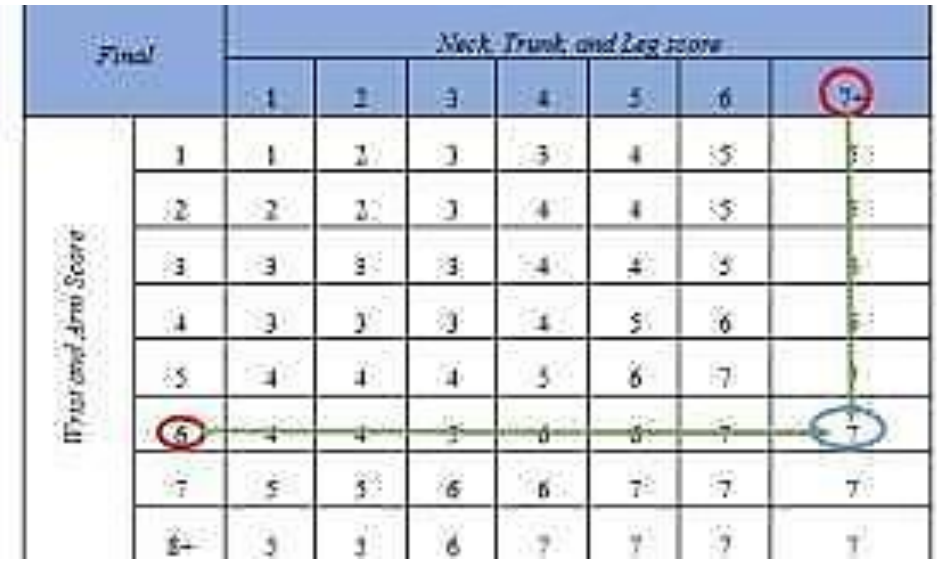
The results of scoring scores A and B are then entered in tables C and D to get scores C and D, namely 7. Because the results of scores C and D are obtained, they will be added together with the scores for muscle use and loading and exertion in group A, the score for muscle use is 1 and exertion is 1. So the total score C will be 5 (total score A) + 1 + 1 = 7. Next, in group B, a score for muscle use is 1 and exertion is also 1. Then the total score D will be 7 (total score B) +1 +1 = 9. So the final score is 7 with a high risk level tall.

Tabel 4. Informan Final Score 4



The results of scoring scores A and B are then entered in tables C and D to get scores C and D, namely 7. Because the results of scores C and D are obtained, they will be added together with the scores for muscle use and load and exertion in group A, the score for muscle use is 1 and exertion is 1. So the total score C will be 4 (total score A) + 1 + 1 = 6. Next, in group B, you get a muscle use score of 1 and exertion of energy is also 1. Then you will get a total score of D of 7 (total score of B) +1 +1 = 9. So the final score is 7 with a high risk level tall.

Tabel 5. Informan Final Score 5



The results of scoring scores A and B are then entered in tables C and D to get scores C and D, namely 7. Because the results of scores C and D are obtained, they will be added together with the scores for muscle use and load and exertion in group A, the score for muscle use is 1 and exertion is 1. So the total score C will be 7 (total score A) + 1 + 1 = 9. Next, in group B, a muscle use score of 1 and exertion of energy is also 1. Then the total score D will be 7 (total score B) +1 +1 = 9. So the final score is 7 with a high risk level tall.

Tabel 6. Posture Risk Level Calculation Results Score

Informan	Skor Akhir	Tingkat Risiko	Kategori Risiko	Tindakan Perbaikan
Informan 1	7	3	Sangat Tinggi	Diperlukan adanya investigasi dan perbaikan secepat mungkin.
Informan 2	7	3	Sangat Tinggi	Diperlukan adanya investigasi dan perbaikan secepat mungkin.
Informan 3	7	3	Sangat Tinggi	Diperlukan adanya investigasi dan perbaikan secepat mungkin.
Informan 4	7	3	Sangat Tinggi	Diperlukan adanya investigasi dan perbaikan secepat mungkin.
Informan 5	7	3	Sangat Tinggi	Diperlukan adanya investigasi dan perbaikan secepat mungkin.

Tabel 7. Results of the Musculoskeletal System Complaints Questionnaire

Informan	Skor Akhir	Tingkat Risiko	Kategori Risiko	Tingkat Perbaikan
Informan 1	41	1	Sedang	Mungkin diperlukan tindakan dikemudianhari
Informan 2	53	3	Tinggi	Mungkin diperlukan tindakan dikemudianhari
Informan 3	48	2	Tinggi	Mungkin diperlukan tindakan dikemudianhari
Informan 4	65	3	Sangat Tinggi	Diperlukan tindakan menyeluruh segera mungkin
Informan 5	68	3	Sangat Tinggi	Diperlukan tindakan menyeluruh segera mungkin

CONCLUSION

Based on research conducted on 5 informants who are goods lifting workers at PT Intipratama Global Services, the following conclusions were obtained: Based on the results of research on the risk level of work postures for goods lifting workers at PT Intipratama Global Services, when carrying out goods lifting activities, 5 informants calculated a very high risk level. Based on the results of research conducted on 5 informants who were workers lifting goods at PT Intipratama Global Services, they showed that they experienced complaints about the musculoskeletal system. From the results of the Nordic Body Map (NBM), it was found that 2 informants had very high levels of complaints, 2 high informants and 1 medium informant.

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