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THE ROLE OF ERGONOMIC POSITION TRAINING TO PREVENT INJURY AMONG MANUAL HANDLING WORKERS IN THE TRADITIONAL MARKET IN YOGYAKARTA

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Abstrak

Dampak pandemi COVID-19 yang melanda Indonesia banyak mempengaruhi kehidupan masyarakat secara umum, tak terkecuali bagi para buruh gendong di Pasar Giwangan. Buruh gendong yang didominasi oleh kelompok wanita lanjut usia, dengan rentang usia rata-rata antara 40 sampai dengan 90 tahun, setiap hari rata-rata mengangkat beban 50 sampai dengan 90 kilogram. Pekerjaan ini memiliki potensi risiko cedera, yang dapat mengganggu aktivitas sehari-hari, juga kelangsungan pekerjaan dari para buruh gendong ini. Program pemberdayaan komunitas ini bertujuan untuk memberikan pemahaman pentingnya posisi ergonomis dalam melakukan pekerjaan buruh gendong di Pasar Giwangan. Program ini dilakukan dengan menggunakan metode sosialisasi dan pelatihan mengangkat barang dan bekerjasama dengan Majelis Lingkungan Hidup (MLH) Pimpinan Pusat Muhammadiyah. Hasil pengabdian menunjukkan bahwa tingkat pengetahuan buruh gendong mengalami peningkatan setelah mereka mengikuti *ergonomic position training*. Edukasi dan training tentang tata cara pemindahan barang yang aman perlu diberikan pada buruh gendong untuk mencegah dan meminimalisir risiko terjadinya cedera.

Kata Kunci: Pandemi, Buruh Gendong, Risiko Cedera, Pelatihan, Ergonomik

Abstract

The impact of the COVID-19 pandemic in Indonesia has affected people's lives in general, including the handling workers at the Giwangan Market. These handling workers, who are dominated by elderly women, with an average age range of 40 to 90 years, lift an average of 50 to 90 kilograms every day. This work has a potential risk of injury, which can interfere with daily activities, as well as the continuity of the work of these handling workers. This community service program aims to provide an understanding of the importance of an ergonomic position in carrying out the work of handling workers at the Giwangan Market. This program is carried out using the method of socialization and training in lifting goods and in collaboration with the Environmental Council (MLH) of the Muhammadiyah Central Executive. This community service enhances the knowledge of manual handling workers on ergonomic positions to prevent injuries. Therefore, education and training should be given to all of the manual handling workers so that the risk of injury can be prevented.

Keywords: Pandemic, Handling worker, Risk of Injury, Training, Ergonomic

INTRODUCTION

The coronavirus disease, also known as Covid-19, is an infectious disease caused by a newly discovered virus called the coronavirus. To combat the development of COVID-19, the government has enacted several restrictions, which, of course, have an impact not only on the social sector but also on Indonesia's social sector economy. Many people in Yogyakarta experience difficulties in their work and some even lose their jobs. One of the jobs affected by the COVID-19 pandemic is Handling workers who are scattered in the Giwangan Market. Their demand for carrying services decreased significantly, causing their income to decrease.

The work of a carrying laborer falls under the category of menial labor (Firas & Izzaty, 2020). In general, men and women do the same menial professions that require physical work. However, this task is carried out exclusively by women, the majority of whom are in their middle years (Firas & Izzaty, 2020). In a single carry, the load carried can range from tens to hundreds of kg. Aside from relying solely on physical strength, particularly labor, this work as a carrying laborer does not necessitate any specific abilities (Firas & Izzaty, 2020). However, most manual handling workers does not use the right technique in lifting and carrying the loads (such as fruits and vegetables) because they do not understand how to lift fruits and vegetables correctly (Pratiwi et al., 2015). A study revealed that 88.4% of manual handling workers in a traditional market in Yogyakarta experience low back pain (Ardi et al., 2021).

Manual handling could lead to some injuries unless it is done with the right techniques. Lifting, placing, pushing, tugging, carrying, or moving a load with the strength of the hands or body is referred to as manual handling (Health and Safety Executive, 2016). Heavy loads handled manually may expose workers to physical problems that could result in injuries (Centers for Disease Control and Prevention, 2007). Lifting things by workers might unintentionally cause disease or harm to the spine, especially if the activity is not done properly (Mas'idah et al., 2009). Work-related back pain is one of the ergonomics problems that arise when lifting and carrying load manually (Pratiwi et al., 2015).

The Vegetable and Fruit Market in Giwangan operates 24 hours, allowing handling workers to work in the morning, afternoon, and evening. Handling workers lift loads without considering their health and safety, such as not limiting the maximum weight that can be lifted and always bending over when lifting goods. In addition, they often do not wear footwear so this can further increase the risk of back pain. Therefore, the service team felt that it was necessary to carry out a socialization and training program to educate handling workers on how to lift weights properly so that they can avoid the risk of injury due to work.

LITERATURE REVIEW

Based on UK Health and Safety Executive (2016), manual handling refers to moving or supporting the load with the hands or by using physical force. Lifting, setting down, pushing, tugging, carrying, or transporting loads are all included. A load might be a person, an item, or an animal. Heavy loads handled

manually may expose workers to physical problems that could result in injuries (Centers for Disease Control and Prevention, 2007). Moreover, the worker's ability to do the task is also influenced by age, strength, physical condition, gender, and other factors (Centers for Disease Control and Prevention, 2007). The damage or disorder of joints or other tissues in the upper/lower limbs or the back is referred to as a musculoskeletal disorder (MSD), which includes injuries caused by manual handling (Health and Safety Executive, 2016).

The ergonomic method is used to design the work system in order to eliminate or lessen the dangers associated with manual handling. It considers the task, the load, the working environment, individual capability, and other factors to ensure the safety of the workers (Health and Safety Executive, 2016). It manages how many loads women and men can carry, how they should fit their posture to lift the load, etc.

However, based on some literatures the implementation of ergonomic position is poor. According to the Labor Force Survey (LFS), about forty percent of all work-related illnesses are MSDs. The risk of MSDs is in line with the heavy manual labor, awkward postures, and a recent injury (Health and Safety Executive, 2016). Ardi et al. (2021) found that 88.4% of manual handling workers in a traditional market in Yogyakarta experience low back pain. Another study that was also conducted in Yogyakarta shows that manual handling workers in traditional markets in Yogyakarta did not understand how to lift the fruits and vegetables correctly. Furthermore, the range of loaded fruits and vegetables is 25–96 kg at a time (Pratiwi et al., 2015). Therefore, it is important for manual handling workers in the traditional market to get ergonomic position training.

METHODS

The aim of this community service is to enhance the knowledge and skills of manual handling workers by applying ergonomic positions to prevent injuries. This service program was carried out together with the Central Leadership of the Muhammadiyah Environmental Council (MLH PP) in providing education and training. The training was conducted at Giwangan Market hall. There were 20 workers who participated in the training. They were taught about ergonomic position training and its role in preventing musculoskeletal disorders.

The training process was carried out in three steps: 1) pre-test; 2) Training program; and 3) post-test. We conducted pre- and post-tests to evaluate participants knowledge of the program. Participants fill out a knowledge questionnaire about ergonomic manual lifting techniques for the pre- and post-test. After that, we compared participants' pre- and post-test scores to evaluate their knowledge. The training program was given through education and practical skills. We used presentations and posters to deliver the information.

RESULTS

This community service enhanced the knowledge of manual handling workers in implementing the principal of ergonomic position in lifting and carrying loads to prevent injuries. As we can see, there was an increase in scores from pre- to post-test.

Figure 1. The opening session of training by the service team

In the opening session, the service team introduced the handling workers and explained the purpose of the activity. They were very enthusiastic about the service program. Many of the handling workers are elderly but they still work to provide for their families' needs.

Figure 2. Knowledge test before the socialization and training program

Before conducting socialization and training, the service team assisted the handling workers to fill out a knowledge questionnaire about ergonomic manual lifting techniques. Many of them cannot read and write so the service team must accompany them to read and then fill in their answers. The following are the results of the participant's knowledge pre-test:

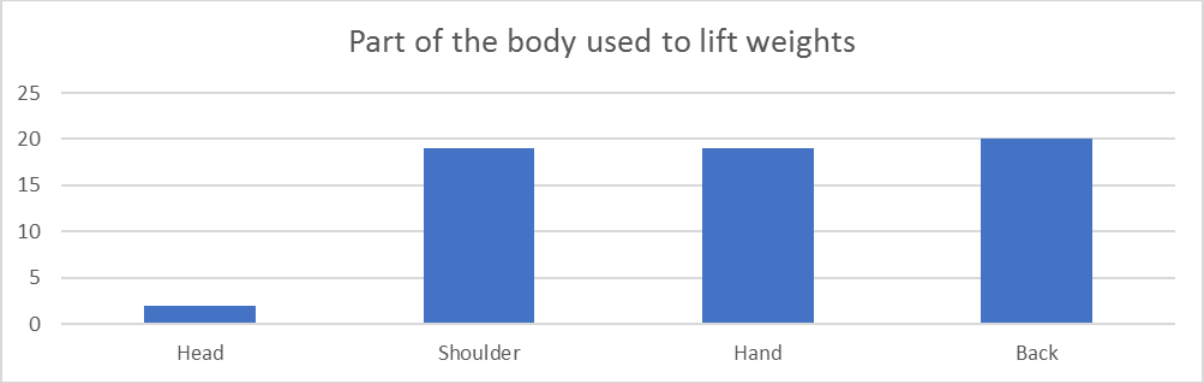

Figure 3. Part of the body to lift weights (Pre-test)

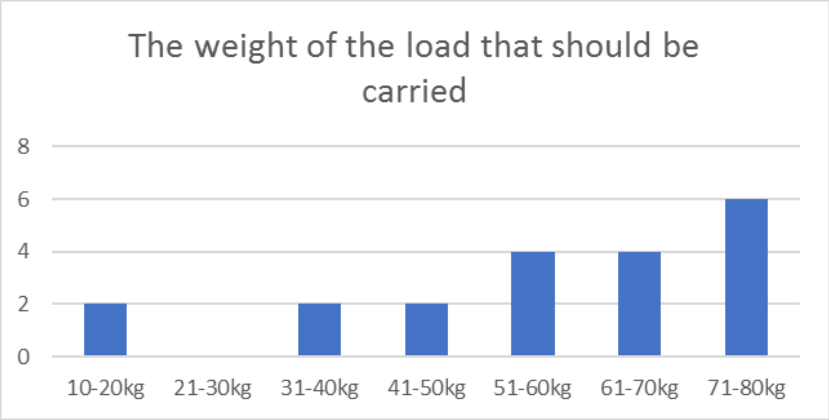

Figure 4. The weight of the load that should be carried (Pre-test)

Table 1. Things to be considered for lifting weights (Pre-test)

Things to be considered for lifting weights	Yes	No
Working in a normal posture	6	14
Reducing overload weight	9	11
Working according to body height	5	15
Reducing repetitive and excessive movements	5	15

Based on the results of the pretest, it can be concluded that the workers carrying at Giwangan market did not consider the weight of the load and the body position when lifting weights.

Figure 5. The socialization and training for manual lifting

Figure 6. Poster on how to lift weights properly

The service team conducted education to handling workers about lifting goods properly to avoid injury. In addition to delivering material, the service team also provided opportunities for handling workers to do exercises. During this activity, the handling workers said that they never applied the correct method when lifting goods so and some of them suffered injuries to their legs.

Figure 7. Movement exercises reduce joint pain

In addition to providing materials and training on lifting weights, the service team also performed movement exercises that can reduce joint pain. The last activity was taking knowledge tests on the

handling workers after being given socialization and training. The handling workers actively participated in the whole series of activities. The following were the results of the knowledge post-test:

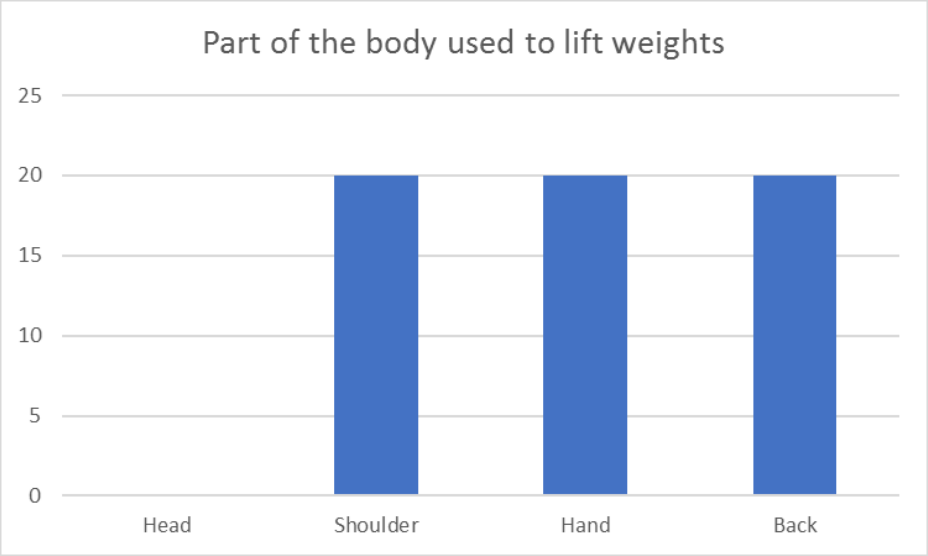

Figure 8. Part of the body used to lift weights (post-test)

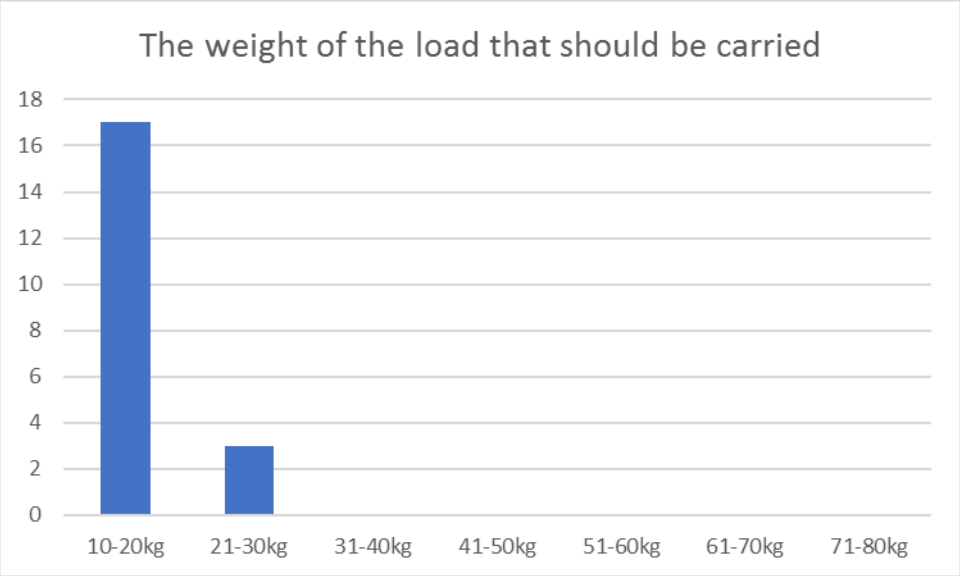

Figure 9. The weight of the load that should be carried (Post-test)

Table 2. Things to be considered for lifting weights (Post-test)

Things to be considered for lifting weights	Yes	No
Working in a normal posture	20	0
Reducing overload weight	20	0
Working according to body height	20	0
Reducing repetitive and excessive movements	20	0

From the results of the post-test, it can be concluded that during the process of delivering materials and training, the carrying labor participants paid close attention. This is evidenced by their increasing knowledge about the ergonomic position of lifting weights.

Discussions

The main result of this community service is that ergonomic training increased the knowledge of manual handling workers in Giwangan Market. After the training was given, they understood and could implement appropriate techniques in manual handling in order to prevent musculoskeletal disorders. Therefore, training should be given to the workers to enhance their knowledge. It is in line with the recommendation of UK Health and Safety Executive: it is important to give manual handling training to the workers so they will understand about the right techniques and procedures which could lead to the prevention of injuries or musculoskeletal disorders (Health and Safety Executive, 2016).

During the program, handling workers said that they complained of back pain. Lower back pain is a common work-related condition caused by manual lifting of weights (Susanto et al., 2013). If a worker performs work such as lifting, lowering, and carrying things without the use of any tools, there is a danger of injury to the worker, such as soreness or injury to the waist. Low back pain, often known as LBP, is a type of discomfort that starts in the lower back and spreads to the legs, particularly the back and outer sides (Susanto et al., 2013). The hallmark of complaints of low back pain caused by wrong work posture is that the discomfort occurs as a result of movements or changes in the wrong posture (Sari & Hidayah, 2018).

To avoid complaints of back pain or other injuries, handling workers should apply for an ergonomic position when working. Ergonomics is the application of human biological sciences, engineering, and technology to produce optimal compatibility between humans and their job, with the advantages assessed in terms of productivity and well-being (Ardi et al., 2021). According to the Health and Safety Executive (2016) of United Kingdom, manual lifting weights in an ergonomic position are: 1) Plan the lifting activity; 2) Keep the burden as close to your waist as you can while lifting; and 3) Make a stable position; 4) Make sure you have a firm grip on the load; 5) Slight bending your knees, hips, and back at the beginning of the lift; 6) Refrain from greater back flexion when lifting; 7) Refrain from twisting or leaning to the side, especially if your back is bowed; 8) Keep your head up when lifting; 9) Move fluidly; 10) Do not handle or raise more than you can manage; 11) Set down before adjusting.

Moreover, it was found that many of the female handling workers were old, but they still worked because they had to meet the needs of their families. Women have been encouraged to work to assist fulfill their daily requirements, one of which is as a carrying laborer, because of the ever-increasing demands for life's essentials and the husband's poor salary (Sari & Hidayah, 2018). In addition, many jobs require a degree of education, which makes it difficult for women who are pregnant to obtain work and a company normally demands certain talents or competence, but female handling workers usually do not have it (Sari & Hidayah, 2018). Therefore, giving manual handling training to the workers is important.

CONCLUSION

This community service found that ergonomic training improved the knowledge of manual handling workers on how to use appropriate techniques to prevent injuries, as lifting and carrying loads are their livelihood. Handling workers often experience back and leg pain complaints; therefore, it is important for them to apply the ergonomic principle to their work. Therefore, training on ergonomic positions should be given to all of the manual handling workers in other regions, as it is important for them to prevent work-associated musculoskeletal disorders.

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