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INJURY PREVENTION AND MOBILITY ENHANCEMENT FOR THE COMMUNITY IN OPEN PUBLIC SPACES IN JAKARTA

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Abstract

Musculoskeletal disorders and mobility limitations are prevalent health concerns in urban communities. Inadequate understanding of safe movement patterns and the absence of structured physical activity often increase the risk of injury and reduce quality of life. To address this issue, a Community Service Program (PKM) titled "Injury Prevention and Mobility Enhancement for the Community in Open Public Spaces in Jakarta" was conducted at the Car Free Day (CFD) area of Monas. The program involved 119 participants, with 50 completing both pre- and post-test evaluations. The primary goal was to enhance movement literacy and raise awareness of safe mobility practices. Activities were organized into preparation, implementation, and evaluation stages. Interactive education was delivered through counseling and demonstrations of dynamic warm-ups, balance exercises, core strengthening, and posture correction. Results showed marked improvement: participants scoring <50% decreased from 36% to 4%, while 80% achieved scores ≥70, confirming the effectiveness of practice-based community education in open space.

Keywords: Mobility, Movement Literacy, Car Free Days, Open Space

INTRODUCTION

Functional mobility is an essential aspect in supporting quality of life, independence, and productivity in the community. The ability of the body to move freely, with balance and efficiency, is required for a wide range of daily activities such as work, social interaction, and exercise. However, urban populations, such as those living in Jakarta, are increasingly vulnerable to musculoskeletal disorders due to sedentary lifestyles, low awareness of proper posture, and the habit of performing physical activities without adequate warm-up or correct movement techniques. Studies have shown that prolonged sitting time, particularly during work-related activities, is significantly associated with increased complaints of neck and back pain (Kallings et al., 2021).

Data from the Global Burden of Disease Study indicate that more than 1.7 billion people worldwide are affected by musculoskeletal disorders (Institute for Health Metrics and

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Evaluation, 2020). In Indonesia, the 2018 Basic Health Research reported that approximately 11.8% of the population experiences disorders of the musculoskeletal system, such as low back pain, knee pain, and neck pain, most of which are associated with physical activities performed with poor technique or without adequate movement preparation (Kementerian Kesehatan Republik Indonesia, 2018). This condition is increasingly evident in public activities such as Car Free Day (CFD) in the National Monument (Monas) area of Jakarta, which serves as an active recreational space for the community. Although CFD is beneficial for increasing physical activity, many participants lack understanding of basic biomechanical principles, including the importance of warm-up exercises and proper posture. Warm-up activities in outdoor exercise settings such as Car Free Day offer several important benefits, including increasing body temperature, activating the neuromuscular system, and preparing both physical and mental conditions prior to the main activity (Afonso et al., 2024).

The impact of improper physical activity practices is also reflected in data on recreational sports injuries. Kementerian Pemuda dan Olahraga Republik Indonesia (2022) reported that approximately 12% of sports injuries occurring in public spaces, including CFD, range from minor injuries such as muscle soreness and calf muscle strain to moderate injuries such as knee sprain and shoulder injuries. Most of these injuries are attributed to the lack of education and guidance related to proper movement techniques during exercise. This highlights the need for educational and preventive approaches within community-based physical activity programs to reduce injury risk and enhance awareness of the importance of movement literacy.

In this context, the physiotherapy profession holds a strategic role in the promotive and preventive efforts of public health. Physiotherapists are able to provide education to the community on the importance of proper warm-up and cool-down techniques, postural correction, flexibility exercises, core muscle strengthening, and balance training to prevent injuries and falls. Therefore, the community service program entitled “Injury Prevention and Mobility Enhancement for the Community in Open Public Spaces in Jakarta” conducted in the Monas CFD area on May 18, 2025, is highly relevant and necessary. Through this program, the community will receive education and hands-on training from professional physiotherapists on safe movement principles, with a focus on injury prevention, mobility improvement, and quality-of-life enhancement, particularly for older adults and individuals at risk of musculoskeletal disorders.

IMPLEMENTATION METHOD

The community service program was conducted in May 2025 in the Car Free Day (CFD) area around the National Monument (Monas), Jakarta, involving a total of 119 participants. Of these, 50 individuals were selected to complete a pre-test and post-test as part of the program evaluation. The implementation method consisted of three main stages:

1. Preparation: This stage included program development, submission of official permission to the National Monument (Monas) management, and the preparation of logistics and educational materials.
2. Implementation: At this stage, a pre-test was administered to 50 selected participants, followed by interactive health education on injury prevention and mobility enhancement,

as well as demonstrations of simple exercises that could be performed independently.

3. Evaluation: A post-test was administered to the same 50 participants, and the pre- and post-test results were analyzed to assess the effectiveness of the program.

Procedures:

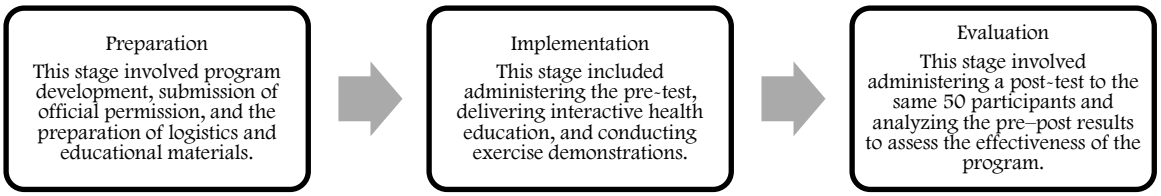

Figure 1. Flowchart of the implementation of the community service program on injury prevention and mobility enhancement in open public spaces

RESULTS AND DISCUSSION

The community service activity in the form of health education and exercise demonstrations on injury prevention and mobility enhancement, conducted in the open public space of Car Free Day (CFD) at Monas with a total of 119 participants, 50 of whom took part in the pre-test and post-test evaluations can be described as follows:

Table 1. Frequency Distribution of the Characteristics of Community Service Participants

Characteristics	Category	Frequency (f)	Percentage (%)
Sex	Male	39	32,8
	Female	80	67,2
Age	< 20 years	15	12,6
	20 – 40 years	50	42,0
	41 – 60 years	35	29,4
	> 60 years (older adults)	19	16,0
Total		119	100

Of the total 119 participants, the majority were female (67.2%), while males accounted for 32.8%. In terms of age, the largest group was 20–40 years (42.0%), followed by 41–60 years (29.4%), >60 years (16.0%), and <20 years (12.6%). These findings indicate that the activity reached various age groups, including older adults who are vulnerable to mobility problems and injuries**.**

Table 2. Distribution of Pre- and Post-Intervention Results of the Community Service Program

Knowledge	PreTest		Post Test	
	Participants	%	Participants	%
Very good	18	36	2	4
Good	22	44	8	16
Fair	8	16	30	60
Poor	2	4	10	20
Total	50	100	50	100

Knowledge evaluation was conducted on 50 participants. The pre-test results showed that 36% of participants had a score below 50%, and only 20% achieved a score of ≥70. After the health education session, the results demonstrated a significant improvement: 80% of participants obtained a score of ≥70, including 20% who achieved scores of ≥90.

Figure 2. Documentation of the health education session and exercise demonstrations, including dynamic warm-up, balance training, core muscle strengthening, and postural correction for the community in an open public space.

The community service program "Injury Prevention and Mobility Enhancement for the Community in Open Public Spaces in Jakarta" conducted on May 18, 2025, at the Car Free

Day (CFD) area of Monas, Jakarta, demonstrated a positive impact on improving movement literacy and public awareness regarding the importance of safe mobility in open spaces. Through direct education that included dynamic warm-up techniques, balance training, core muscle strengthening, and postural correction, this activity successfully improved participants' understanding of safe functional movement.

One of the key components highlighted in this program was dynamic warm-up, which proved effective as an initial step in preventing injuries and preparing the body before physical activity. Warm-up does not merely serve to increase body temperature and muscle flexibility, but also optimizes neuromuscular activation and mental readiness to participate in outdoor physical activities such as CFD. A study by Wang et al. (2020) supports this finding, showing that interventions consisting of mobility and balance exercises, including structured warm-up, can reduce injury risk by up to 26%. This indicates that warm-up is not just a preliminary routine, but an integral part of preventive strategies in community-based physical activities.

The results of the pre- and post-test evaluations demonstrated a significant improvement in participants' understanding of safe movement. Prior to the intervention, 36% of participants had a low level of knowledge (<50%), whereas after the activity, this number dropped drastically to 4%. Conversely, the majority of participants (80%) achieved a post-test score above 70%, indicating the effectiveness of the educational approach implemented in this program.

Scientific support for the success of this approach is reflected in recent literature. Chairunisa et al. (2024) reported that postural education combined with core training significantly reduces musculoskeletal complaints in high-risk groups, such as office workers. These findings are reinforced by Putsa et al. (2022) and a meta-analysis by Dzakpasu et al. (2021), which showed that prolonged sitting time and lack of active movement are correlated with increased complaints in the neck, shoulder, and back regions. Structured warm-up, initiated with general exercises to enhance mobility and coordination and followed by specific exercises tailored to the type of activity, has been shown to provide substantial physiological and psychological benefits (Lubinski & Kosendiak, 2017). Therefore, warm-up and corrective movement exercises are important strategies for preventing musculoskeletal disorders, both in the workplace and in public spaces.

In conclusion, this community service activity underscores that structured and applicable warm-up performed in public spaces plays an important role in injury prevention, mobility enhancement, and strengthening community movement literacy. This approach is not only educational but also provides direct experiential learning for the public in applying safe and effective movement principles. Such an intervention is highly relevant in supporting promotive and preventive paradigms in public health services and can be replicated in various public spaces as a sustainable strategy to improve community health.

CONCLUSION

This activity demonstrated the effectiveness of an interactive and practical community-based educational approach in addressing the low level of public awareness regarding the risk of musculoskeletal injuries, particularly among urban residents who frequently engage in outdoor activities such as Car Free Day. The observed increase in knowledge is highly important, as musculoskeletal disorders are one of the leading causes of disability and reduced quality of life, especially among older adults who have a higher risk of falls and injury.

In addition, the outcomes of this community service activity are in line with previous studies showing that physiotherapy interventions such as education on proper posture, muscle-strengthening exercises, and balance training can significantly reduce the risk of injury and enhance the functional independence of participants. Therefore, preventive education programs and physical exercise interventions such as this are highly recommended to be continued and more widely implemented in order to foster a culture of safe, healthy, and productive active living within the community.

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