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PHYSICAL EXERCISE TO MAINTAIN GOOD POSTURE

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ABSTRACT

Body posture refers to the alignment and arrangement of body parts during specific activities. Good posture is influenced by the curvature of the spine and its ability to withstand gravitational forces or other external influences. It is essential to maintain proper posture, as failure to do so can lead to discomfort, particularly within the musculoskeletal system. According to several previous studies, non-ergonomic positions during activities such as using mobile phones, laptops, or other electronic devices have resulted in 67.9% to 91% of respondents experiencing musculoskeletal disorders, especially in the neck, back, and shoulders. Poor posture also affects other body systems, including the gastrointestinal and respiratory systems. This issue is predominantly found among adolescents, with poor posture reported in 79.92% of teenagers in China. The high prevalence of poor posture among adolescents underlies the rationale for this community service activity. The activity involved conducting educational sessions for university students, aiming to improve their knowledge of proper posture and way to maintain it through physical exercise. This community service activity began with explanation about basic concept of body posture, followed by hands-on practice. The first session provided information on factors that maintain good posture, identification of correct and incorrect posture, the health risks associated with poor posture, and practical exercises to strengthen the muscles that support the body. Then, the participants were asked to demonstrate some of the postures and exercise to strengthen muscles. Participants were encouraged to practice these exercises regularly to develop and sustain good posture.

Keywords: *Body posture; health education; musculoskeletal; physical exercise*

1. INTRODUCTION

Good posture is a crucial component in maintaining the health of the musculoskeletal system. Poor posture, such as slouching while sitting or standing for prolonged periods in an imbalanced position, can lead to various health issues, particularly affecting the bones and muscles, with potential impacts on other body systems. Postural problems among adolescents and young adults are often associated with excessive gadget use. This is primarily due to the high frequency of gadget usage (such as smartphones, laptops, and tablets) among these age groups, especially university students. Gadgets are essential tools for communication, accessing information via social media, and conducting internet-based learning (Susilowati et al., 2022; Blair et al., 2015). Postural imbalances contribute to muscle tension, back pain, respiratory problems, gastrointestinal disturbances, and a decline in overall quality of life (Kisner et al., 2018; Harvard Health Publishing, 2023). Previous studies have indicated that non-ergonomic body position during activities involving gadgets results in 67.9% to 91% of respondents experiencing musculoskeletal complaints, particularly in the neck, back, and shoulder regions (Susilowati et al., 2022; Blair et al., 2015).

We often overlooked postural problems, despite their potential to develop into chronic complaints that interfere daily activities. Musculoskeletal disorders, particularly those related to posture and the spinal column, are among the most common health issues in both working-age

individuals and the elderly. Contributing factors such as poor postural habits, lack of physical activity, prolonged static workload, and limited understanding of ergonomics and therapeutic exercises frequently lead to chronic postural dysfunction and low back pain. This condition not only disrupts everyday functioning but also negatively impacts productivity and overall quality of life (Kisner et al., 2018).

Research indicates that approximately 70% of adults experience low back pain at least once in their lifetime, with poor posture and insufficient physical activity being among the primary risk factors (Hartvigsen et al., 2018). Musculoskeletal complaints affected 1.71 billion people worldwide in 2022, and this number continues to rise. Low back pain is the leading cause of disability across 160 countries and significantly impacts daily human life (WHO, 2022).

Low back pain can result from improper body posture. Human posture is influenced by ligaments, fascia, bones, and joints that support the body, as well as muscles and tendons that maintain posture and movement. Additionally, the curvature and flexibility of the spine play a crucial role in supporting posture. These components must withstand gravitational forces to preserve proper posture (Kisner et al., 2018). According to Kisner and Thorp, postural disorders can arise from weak core muscles and insufficient neuromuscular control. Remaining in improper body positions for a long duration leads to repetitive stress on soft tissue structures, resulting in mechanical impairments that cause pain, muscle fatigue, and even injury) (Kisner et al., 2018). To address musculoskeletal health issues, the World Health Organization (WHO) has developed the Rehabilitation 2030 program (WHO, 2022). In line with this initiative, preventive efforts to maintain musculoskeletal health from an early stage are highly recommended.

Limited public awareness of the importance of maintaining proper posture and the lack of knowledge regarding ergonomic principles have contributed to the worsening of this issue. Many people are still unaware of the significance of postural stability and therapeutic exercises in preventing spinal disorders. Therefore, there is a need for educational and practical interventions through community engagement programs to enhance public knowledge, skills, and awareness about maintaining proper posture and performing appropriate physical exercises. This initiative aligns with the mission of higher education institutions to directly contribute to improve community quality of life through promotive and preventive approaches based on scientific knowledge.

The partner institution for this community service activity is Kun Shan University, located in Tainan, Taiwan. Tainan is a developed city, equipped with educational facilities ranging from elementary to higher education, and is rich in historical tourist attractions. The local economy is primarily driven by industry, tourism, and agriculture. Gadget use among Taiwanese youth is also relatively high. One study conducted in Taiwan found that 62.14% of student participants had been using smartphones for 1–3 years, and 76% of them experienced physical complaints related to smartphone use (Miao et.al, 2018). Given that adolescents are particularly susceptible to this health condition, university students were selected as the primary focus of this initiative. They are exposed daily to risk factors for musculoskeletal disorders, such as prolonged study hours spent sitting at desks and frequent use of gadgets (mobile phones, laptops, and others). In addition, as young intellectuals, students are expected to serve as agents of change within their communities. Their relatively young age also makes them an ideal group for initiating preventive efforts to avoid the onset of musculoskeletal disorders.

Through this targeted community interventions, including postural education and correctional training, participants are expected to gain greater insight into the importance of postural stability and skills in maintaining body balance and stability independently. Simple interventions such as core muscle strengthening exercises, postural awareness, and functional ergonomics can help prevent musculoskeletal complaints and enhance the overall quality of life within the community.

2. METHOD

To achieve the intended goals, this community service activity was prepared in a detailed and comprehensive manner. The implementation steps are as follows:

a. Preparation

- **Identifying the problem**
  The preparation phase began with a literature review on common health issues experienced by university students or individuals in the adolescent and young adult age categories. It was found that certain health problems may stem from their daily activities. Prolonged gadget use or sitting for extended periods in non-ergonomic positions can lead to health complaints. Therefore, it is necessary to increase awareness about proper body posture for various daily activities. To maintain proper posture, individuals can train specific muscles that support the body. This can be achieved through targeted physical exercises.
- **Selecting Feasible Alternative Solutions**
  To address posture-related health issues, several alternative solutions can be considered:
  1. Educating individuals on the importance of maintaining good posture,
  2. Practicing exercises that strengthen postural support muscles (Core exercise),
  3. Ongoing monitoring of posture-maintaining exercise routines, and
  4. Modifying facilities and infrastructure to support ergonomic daily activities.

  Among the possible solutions, alternatives 1 and 2 were deemed feasible to implement in this community service initiative. Solution 3, on the other hand, was introduced to participants as a self-managed activity.
- **Preparing the Materials**
  Materials including explanations of proper and improper body posture and exercises designed to strengthen specific muscles that support posture. During this phase, photographs of body positions and exercise movements were taken. These photos were not only included in presentation materials, but also used for educational posters.

b. Implementation

On the day of the event, the activity was divided into two sessions, begin with an explanation of the fundamentals of body posture, followed by practical exercises aimed at strengthening muscles in the cervical and thoracic regions (back of the neck and chest), as well as the lumbar region (lower back). The materials delivered during the session included explanations of:

- The definition of body posture
- Body parts that support posture
- Benefits of maintaining good posture
- Recognizing proper and improper posture
- Exercises to strengthen muscles that support good posture

The practical session was conducted as follows:

- Participants were first asked to demonstrate their usual body posture. They were then shown the correct posture.
- Participants were guided through specific exercises designed to strengthen the postural support muscles and were encouraged to practice them regularly as part of their daily routine.

c. Evaluation

The evaluation was conducted to assess the extent to which the objectives of the community service activity were achieved, specifically the improvement of participants' knowledge and mastery of exercises aimed at strengthening muscles involved in maintaining good posture. This evaluation was carried out through direct observation during the practical session of the activity.

During practice session, participants were asked to come to the front or remain in place to demonstrate their usual daily posture. They were then guided on how to adopt the correct posture. Additionally, participants performed muscle-strengthening exercises. Observations were made to assess the accuracy of their movements and the degree of improvement in their posture.

For long-term impact, based on the principles of self-directed learning, participants were encouraged to continue practicing proper posture and strengthening exercises independently after the session. They were also motivated to carry out self-assessment and personal reflection on their posture during daily activities.

3. RESULT AND DISCUSSION

Health education was held on April 16, 2025. The participants of this community service activity were 15 management students from Kun Shan University, Taiwan. They received explanations about body posture, followed by direct practical exercises. This method is considered effective for learning, particularly in adult education, which emphasizes active learner participation. This form of experiential learning also promotes lifelong learning. Therefore, this activity can serve as a foundational knowledge base for participants to continue learning, particularly in applying posture-related knowledge in their daily activities. The direct practice-based learning process, integrated with participants' prior knowledge, leads to the construction of new knowledge. In this knowledge-building process, learners' active involvement in self-assessment is essential. External feedback plays a significant role in encouraging self-assessment (Amin et al., 2016).

During presentation, it could be observed that participants' understanding of the presentation material was still not optimal and they were unaware of the correct standards that should be followed. This could be identified from the bquestions posed by the presenter during the session, which participants were unable to answer accurately, as well as from their performance during the practical session regarding proper posture for specific activities. However, following the explanations and the provision of examples, delivered both directly and through supporting materials such as photographs and short videos demonstrating correct posture and core strengthening exercises, participants were able to follow the instructions and successfully demonstrate appropriate postures and movements.

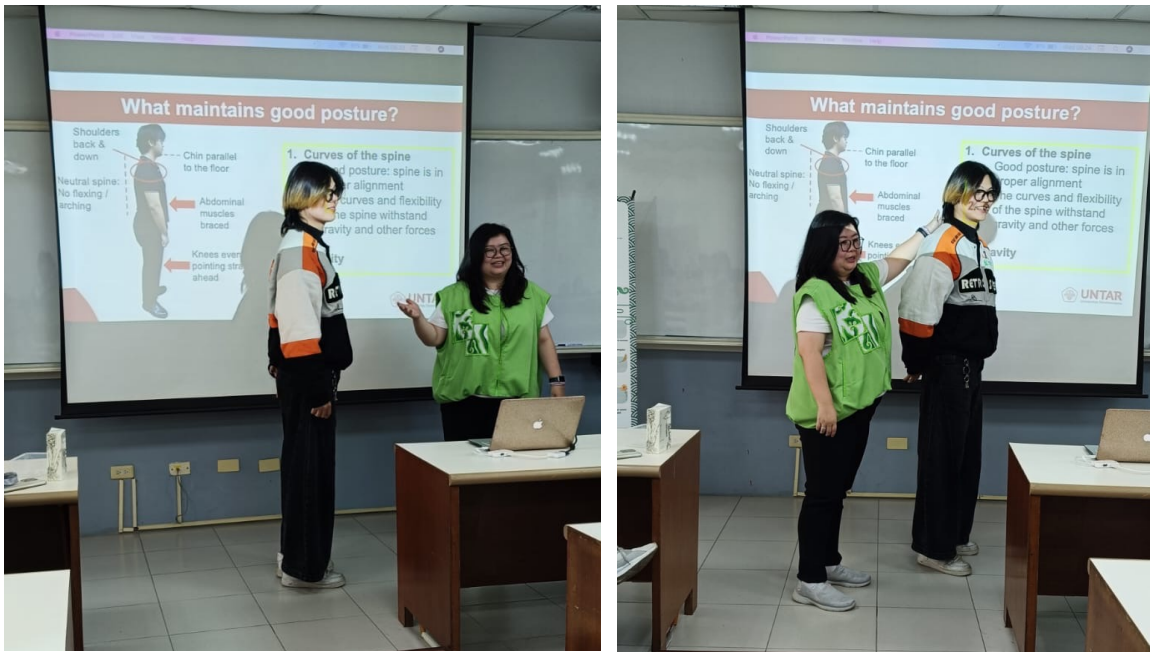

Figure 1. Participant demonstrated proper standing posture based on the instructions provided

The implementation of this activity yielded several benefits for the student participants. They were able to comprehend the presented material quickly and effectively. Moreover, as young intellectuals, they have the potential to serve as agents of change within their communities. On top of that, the relevance of the content to their everyday experiences further increased the effectiveness of the intervention and is expected to contribute to long-term benefits. University students were considered appropriate participants for this activity due to the significant health benefits they can gain from early preventive interventions. As individuals in late adolescence or early adulthood, they are still within a critical developmental window for musculoskeletal health promotion. (Faienza et al., 2023) emphasize that early life—particularly childhood and adolescence—is a crucial period during which musculoskeletal structures are undergoing rapid development and remain highly responsive to mechanical and lifestyle interventions (Faienza et al., 2023). Therefore, engaging students in activities such as physical exercise, posture education, and ergonomic awareness at this stage may not only enhance their current well-being but also serve as a preventive measure against musculoskeletal disorders in later life.

Nevertheless, this educational session and practical exercises were conducted in a single day, which may not be sufficient for participants to fully internalize and consistently apply correct posture habits over the long term. Yet, at the end of the session, facilitator encouraged participants to perform self-assessment and independent practice. Although it relies heavily on their motivation, which may affect the accuracy of long-term outcome.

4. CONCLUSION

The objectives of this community service activity—to enhance students' knowledge of proper body posture and physical exercises to maintain it—have been successfully achieved. Student participants were provided with explanations and supervised practical sessions, accompanied by constructive feedback. For the long term, participants were also motivated to continue practicing correct posture. To further improve the long-term effectiveness, future community service activities could incorporate tools that guide students in conducting self-assessments of their daily posture.

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CONFLICT OF INTERESTS

The authors have no relevant competing interests to disclose concerning the content of this article.

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