

Screen Time, Posture, Impacts, and Self-Management Training for Back and Neck Pain for Students

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ABSTRACT

The advancement of technology has become an integral part of life, including in the field of education. Gadgets are widely used by students for both learning and entertainment purposes. However, excessive use of gadgets can lead to various negative effects, one of which is health issues resulting from poor posture. This community service activity aimed to provide knowledge and skills about the correct duration of screen time, proper posture while using gadgets, the impacts of poor posture during excessive screen time, and methods for performing self-exercises at home to alleviate neck and back pain caused by poor posture while using gadgets. The activity was conducted in the form of educational outreach and simulations. The simulations taught included neck stretching techniques and McKenzie Exercises to address neck and back pain. The evaluation results indicate that this community service activity effectively improved knowledge about screen time, posture, its impacts, and self-management of screen time effects, as evidenced by an 18.3% increase in the average percentage of correct answers (p-value 0.000).

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INTRODUCTION

Technological advancement is something we cannot avoid. Almost all of our information and communication needs are fulfilled through technology. Gadgets have become one of the latest technologies essential for supporting various activities. A gadget is a technological tool that simplifies a range of tasks, such as serving as a source of information and communication, a medium for pursuing hobbies and creativity, and much more (Setyaningsih, 2023). Gadgets have developed rapidly in Indonesia, making it one of the countries with the largest number of Facebook, Twitter, and WhatsApp users in the world, with 52 million users, including teenagers (Siregar & Putri, 2024; Pristianto et al., 2023).

Gadgets have become an integral part of daily activities, even for children. The use of gadgets increases as children transition into adolescence (Pearson et al., 2019). Weekly gadget usage among children aged 10-14 has risen from 8 to 15 hours (Rachmayanti et al., 2022). Research indicates that 43.1% of children under the age of 15 use gadgets for 1-3 hours, while 28.8% use them for more than 4 hours (Bansal & Mahajan, 2017). The ideal duration of gadget use for middle school-aged children is less than two hours per day (Setiawan, 2022). Excessive gadget use can lead to physical fatigue, eye problems, sleep disturbances, and postural issues, potentially resulting in neck pain due to forward head posture (FHP) (Sefianti et al., 2023). A study conducted on-screen time involving 120 junior high school students across four schools in Yogyakarta found that 68.3% of the students fell into the excessive use category (>2 hours/day) (Utami et al., 2018).

When using gadgets, bending the neck forward and leaning the neck forward can lead to Forward Head Posture (FHP). Research conducted on children and adolescents in several schools in Australia found that 115 out of 448 children aged 5 to 10 experienced FHP. One contributing factor to FHP is a lack of knowledge about ergonomic positions during gadget use (Wiguna et al., 2019). In addition to Forward Head Posture, back pain is also a negative impact of poor posture during gadget use (Multazam & Irawan, 2022). The overall prevalence of neck pain in the general population is reported to be 23.1% (Soyer & Akarirmak, 2020). This is supported by the theory that sitting for extended periods in improper positions can cause the muscles in the lower back to tense up. Poor posture in children can also lead to balance disturbances (Naufal & Wahyuni, 2022).

Common issues faced by high school students related to screen time and its impact on health include a lack of knowledge and understanding among both students and teachers about appropriate screen time practices and the management of problems arising from excessive screen time. Specific issues include an unclear understanding of the correct duration of screen time, proper posture while using gadgets, the consequences of poor posture with excessive screen time, and methods for performing self-exercises at home to alleviate neck and back pain caused by poor posture during gadget use. A simple survey conducted through interviews with teachers and students revealed that there is insufficient awareness regarding screen time and its health effects, as well as inadequate strategies for addressing the issues it creates.

The goal of the upcoming activity is to enhance the knowledge and understanding of students at MTsN 3 Sleman regarding the correct duration of screen time, proper posture while using gadgets, the consequences of poor posture during excessive screen time, and methods for performing self-exercises at home to alleviate neck and back pain caused by poor posture while using gadgets.

METHOD

The method used in this community service activity involves educational outreach through health education and training through simulations. The outreach aims to provide knowledge and understanding about the correct duration of screen time, proper posture while using gadgets, and the consequences of poor posture during excessive screen time. The community service was conducted in June 2023 at MTs

Negeri 3 Sleman, located in Wedomartani Village, Ngemplak District, Sleman Regency, Yogyakarta. The tools and materials used in this activity included writing supplies, pretest and posttest questionnaires, attendance forms, leaflets, PowerPoint presentation files, a projector, a sound system, and a camera for documentation.

The activity was carried out in the form of health education or outreach, involving the presentation of material. Following the educational session, training in the form of simulations was conducted to provide participants with an understanding and practice of self-exercises to alleviate neck and back pain caused by poor posture during gadget use. The students, as part of the service team, served as facilitators during the simulation activities. Additionally, the students assisted with the evaluation process. The evaluation included pretest and posttest questionnaires to assess the outcomes of the community service activity

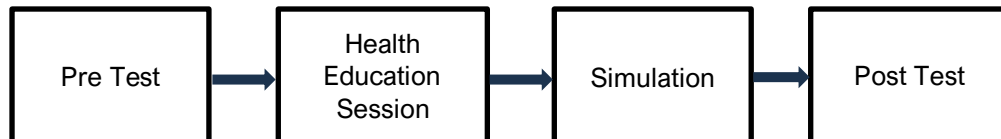


FIGURE 1. Implementation stage

RESULTS AND DISCUSSION

The initial phase of this community service activity began with a field survey and interviews with school officials regarding the common issues faced by students. This was followed by establishing a timeline and technical details related to the activities, resulting in an agreement on the schedule, facilities, and other technical aspects of the implementation. The community service activity was successfully carried out and achieved the desired objectives.

Sixty-two students from grades 7 and 8 participated in this community service activity. The activity, held at MTsN 3 Sleman in Wedomartani, Ngemplak, Sleman, aimed to enhance the knowledge and understanding of MTsN 3 Sleman students regarding the appropriate duration of screen time, proper posture while using gadgets, the consequences of poor posture during excessive screen time, and methods for performing self-exercises at home to alleviate neck and back pain caused by poor posture while using electronic screens.

The activity began with an introduction from the service team, an explanation of the objectives to the participants, and a description of the activity's procedures. The event involved three lecturers from the Physiotherapy Diploma Program at Respati University Yogyakarta, as well as two students from the same program. The health education session covered key topics broadly, including the recommended duration of screen time according to international and national guidelines, correct posture while using devices, and simple, practical tips for maintaining eye health during screen time.

Following the health education session, the activity proceeded with a simulation. The purpose of the simulation was to teach students how to independently manage neck and back pain frequently experienced during and after gadget use. The simulation involved displaying a series of movements on a screen, which were demonstrated by the facilitators, and then practiced by all participants.

The first simulation involved teaching participants Neck Exercise techniques. The Neck Exercise consists of several movements: neck rotation, isometric neck extension, Levator Scapula stretch, lateral neck stretch in a standing position, chest stretch in a standing position, shoulder roll, and chest stretch at a corner of the room. Each movement is performed for a count of 10 and can be repeated 2-3 times. The exercises can be done once a day independently, 3-5 times a week, or as needed. This Neck Exercise technique has been

shown to reduce neck pain in subjects who experience neck discomfort from using electronic screens in incorrect positions (Soyer & Akanrmak, 2020).

The next simulation involved training participants to manage back pain using the McKenzie Exercise technique. This technique includes several movements: lying face down, lying face down in extension, extension while lying, flexion while lying, extension while standing, flexion while standing, and flexion while sitting. Each movement is performed for 8-10 counts and can be repeated 3-5 times. The exercises can be done once a day, 3-5 times a week, or as needed. The McKenzie Exercise technique is an effective solution for managing non-specific low back pain (Fatoye et al., 2022).

The evaluation method for this activity used pretest and posttest results from all participating attendees. The average pretest score was 69.5, while the average posttest score was 82.3. The difference between the pretest and posttest scores indicates an increase of 12.8 points or 18.4%. This suggests a significant improvement in students' knowledge regarding the correct duration of screen time, proper posture while using gadgets, the consequences of poor posture during excessive screen time, and methods for performing self-exercises at home to alleviate neck and back pain.

A statistical test was also conducted to determine the difference between pretest and posttest scores. After performing a comparative test, the p-value obtained was 0.000 (<0.05). This result indicates a significant difference between the average pretest and posttest scores of participants in the training on screen time knowledge, posture, its impact, and self-management of screen time effects.

TABLE 1. Recapitulation of Average Pretest Posttest Score

Description	Average Pretest Score	Average Posttest Score	Difference	p-Value
Evaluation Results	69,5%	82,3%	18,3%	0,000

Source: Personal Documentation



(a) (b)
FIGURE 2. (a) Simulation Activity, (b) Education activity.

The use of the educational outreach method for providing health education in this community service activity is based on previous research showing that outreach methods can enhance knowledge (Dwisatyadini et al., 2021; Fitria & Sudiarti, 2021; Seni et al., 2023). As demonstrated in other published community service activities, the outreach method has proven effective in increasing participants' knowledge. Previous community service activities published on clean and healthy living (PHBS) have shown that the outreach method increased community knowledge by 37.2% (Suprpto & Arda, 2021). Another study demonstrated that outreach activities significantly improved participants' knowledge about the role of family planning counseling in enhancing contraceptive knowledge among couples of childbearing age in impoverished communities (Fatchiya et al., 2021).

The use of simulation methods in this activity, aimed at enhancing participants' skills in independently managing neck and back pain, is supported by previous research demonstrating that simulation methods effectively improve participants' skills (Winoto & Zahroh, 2020). Other community service activities

employing simulation methods have also shown similar results, with notable improvements in participants' skills. Additional research indicates that simulation and education methods effectively enhance the knowledge and skills of Posyandu cadres in monitoring child development and providing health counseling (Nurbaya et al., 2022).

CONCLUSION

The conclusion of the community service activity, which focused on improving knowledge about screen time, posture, its impacts, and training for self-management of screen time effects among students at MTsN 3 Sleman Yogyakarta, is that it effectively enhanced the student's knowledge, understanding, and skills. This is evidenced by the 18.3% increase in the average percentage of correct answers (p-value 0.000).

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