

Lower back pain on computer use on Information and Computer Technics (IT Management) students from STMIK STIKOM University Bali



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ABSTRACT

Background: Lower back pain is a pain syndrome that occurs in the lower back region as various causes. This disorder is most commonly found among students, especially in those who sit with the wrong body posture.

Aims: The purpose of this study was to determine how does using the computer for an extended period causes lower back pain for students and to identify the prevention method of lower back pain because of using that equipment.

Methods: This study used cross-sectional design using primary data through questionnaire and interview. The sample population

of this research is Information and Computer Technics (IT Management) students in STMIK STIKOM University Bali. Using the entire sampling method yielded 32 samples.

Results: There is a significant result of using the computer for a long time and sitting postures toward lower back pain complaints on students in STMIK STIKOM University Bali.

Conclusion: Based on the results of the study is still very necessary to give attention and changes on the amount of time using a computer and sitting postures for students to support the health of students.

Keywords: lower back pain, students, body postures

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INTRODUCTION

Ergonomics is the process of designing or arranging workplaces, products, and systems so that they fit the people who use them. Other than that, ergonomic also is a branch of science that aims to learn about human abilities and limitations, and then apply this learning to improve people's interaction with products, systems, and environments.

Ergonomics aims to improve workspaces and environments to minimize the risk of injury or harm. So as technologies change, so too does the need to ensure that the tools we access for work, rest and play are designed for our body's requirements. In the workplace: According to Safe Work Australia, the total economic cost of work-related injuries and illnesses is estimated to be 60 billion dollars.¹ Recent research has shown that lower back pain is the world's most common work-related disability – affecting employees from offices who work with a computer for a long time, building sites and in the highest risk category, agriculture. Ergonomics aims to create safe, comfortable and productive workspaces by bringing human abilities and limitations into the design of a workspace, including the individual's body size, strength, skill, speed, sensory abilities (vision, hearing), and even attitudes.

Lower back pain is the most frequent musculoskeletal disorders among other muscle disorders. Residents in the United States, acute lower back pain, ranks 5th on the cause of most treatment to medical personnel. Nine of ten adults had experienced lower back pain throughout his life, and 5 out of 10 adults experience low back pain each year.² Factors reported to work is one of the factors associated with some impairment of skeletal muscles, which is perceived as pain and interfere with the movement. This type of work and how to do the job reported a role in lower back pain, which is a type of work that is done manually and less precise manner when lifting and moving.

Based on The Global Burden of Disease, 291 diseases have been studied, and lower back pain is the most significant contributor of global disability, as measured by years lived disability, and was ranked sixth of the total burden overall, as measured by the disability-adjusted year (DALY). DALY is a metric measurement standard to measure the load calculated by combining years of life lost and years live with a disability.³

Some conditions that may be a precipitating factor, among others, is an education that requires the deployment of force or excessive repetition of movements that can cause injury to the muscles and nerves. Secondly, awkward positions will create

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stretching extreme static positions or positions when study must be silent or not move for extended periods. Third, movements such as bending and twisting, and the recovery time is inadequate because of overtime and lack of rest.⁴

When you have been sitting at a computer all day, you have to deal with compression problems at both the bottom of the spine and at the cervicothoracic junction where your neck meets your shoulders. Compression of the base is straightforward. The bricks at the bottom of the stack take more weight and slowly leach fluid from the intervertebral disc which are the fibro-elastic pillows between the vertebrae. As you sit, day in day out, your disc gradually become thinner and drier and then cannot pull apart a puff up even when you are not sitting. Your low back gradually becomes stiffer and less forgiving, and in this fragile state, it is much easier to hurt through jolting or jarring. From these inauspicious beginnings, you can go on to have years of back trouble.^{5,6}

METHODS

This study uses cross sectional design. The subject of the study is Information and Computer Technics (IT Management) students from STMIK STIKOM University Bali. The study was conducted using researcher-administered questionnaire. By simple random sampling technique, a researcher chooses a sample based on subjective considerations and practical, in this case, the Information and computer technics (IT Management) students that fit into the inclusion criteria. The body of students naturally forms body posture as a result of interacting with a facility used or their study habits.

RESULTS

This study is carried out as many as 32 samples Those characteristics were compared by age, sex, and education level as shown in Table 1. The result of this study shows that lower back pain

on computer use in males and females are equal, which is 100% respectively. The occurrence of lower back pain on computer use is more frequent in men than in women in Indonesia. There were no differences statistically in the prevalence of lower back pain according to age group, sex, and educational level. Furthermore, it is also found that all the target populations were familiar with lower back pain on computer use and this is more frequent among students. Based on their opinion, using the computer for an extended period causing lower back pain for students. Besides, there are 30 students (93.75%) who use it more than four times in a day. Moreover, there are eight students use it for four to six hours in a day, nine students for six to eight hours in a day, and fifteen students for more than eight hours in a day. The most common sitting postures in front of a computer are A and C which is 34% and 33% respectively. The second most common sitting posture is E which is 27%. The least frequent sitting poses in front of a computer are B, D, and F which are 6 %, 0% and 0% respectively.

Furthermore, it is also found that all the target population were familiar with lower back pain on computer use and never tried any medications before. Additionally, in the last two weeks, eleven students often had lower back pain due to computer use, and sometimes so had twenty-one students. Moreover, in the scale 1-10 from the lowest to the highest, the quality of lower back pain on computer use for thirteen students is four, eleven students are five and eight students is six. Besides, four students had constant lower back pain on computer use, and twenty-eight students had intermittent lower back pain on computer use. Lastly, all target populations were not comfortable sitting in front of a computer for an extended period.

DISCUSSION

Figure 2 shows that only 6% of students who have the ergonomic sitting position while using a computer. Besides, 94% of students who do not have the ergonomic sitting position and complaint about lower back pain. Body postures of students while using a computer where work is done using hands and eyes that require specialized skills. So including static sitting positions for a relatively long time compared to the workload on the muscles is a major cause of pain and fatigue.⁷ The wrong sitting position is the cause of lower back problems especially lower back pain. Sitting postures can cause stretching of the spine so that it arises complaints of pain in the back area. The pressure on the spine will increase during sitting, compared to standing or lying down.

Table 1. Characteristics of the sample

Characteristics	Frequency	Percentage %
Age		
19 – 21	14	43.75
22- 24	18	56.25
Sex		
Male	17	53.13
Female	15	46.87
Educational Status		
Degree level	31	96.87
Masters	1	3.12

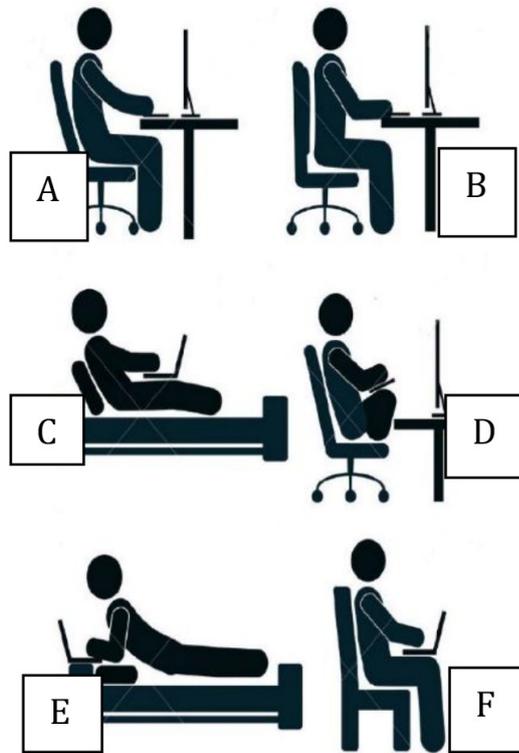


Figure 1. The illustration shows the examples of sitting postures while using the computer.

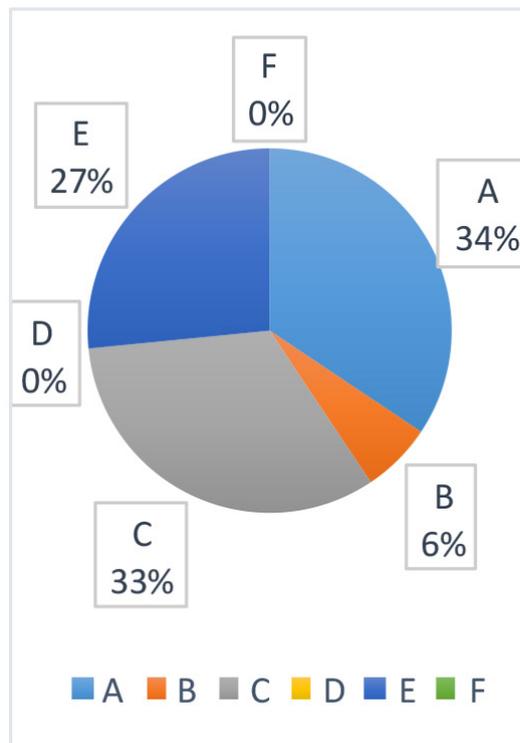


Figure 2. The percentage of sitting postures while using a computer.

Based on the duration of sitting postures showed that of 15 students use the computer for more than eight hours in a day. Prolonged sitting has a relationship with lower back pain problems. It is related to the literature review stated in the study conducted by Samara et al. with the case-control method. That study indicated that sitting for 1.5 to 5 hours has a risk of 2.35 times higher for the occurrence of lower back pain. People who are using a computer with a non-ergonomic sitting position for half a day or more have a relative risk of 1.6 times for the occurrence of lower back pain.⁸

CONCLUSION

Based on the data collected from Information and Computer Technics (IT Management) students in STMIK STIKOM University Bali, lower back pain on computer use in males and females are equal. The most affected age group is those between 22 to 24 years. They who use the computer for more than eight hours in a day and using it for a long period of time causing lower back pain for students.

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