

ORIGINAL ARTICLE

Correlation Between Length of Work and Work Posture With Low Back Pain Complaint among Back Office Employees at X Hospital Serpong District, South Tangerang, Indonesia

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ABSTRACT

Introduction: Low Back Pain (LBP) is an occupational disease that is often the main cause of disability, thus affecting the work and general welfare of LBP sufferers. The objective of the present study is to determine the correlation between length of work and work posture with complaints of LBP among back-office employees at X Hospital. **Method:** The design of this study was a descriptive analysis, with cross-sectional study design, by total sampling technique for 44 back-office employees. Work posture risk assessment uses the Ovako Working posture Assessment System (OWAS) method and LBP complaints are measured using the Modified Oswestry Low Back Pain Disability Questionnaire. **Results:** Most respondents experienced LBP complaints in the moderate disability category, and 40 people (90,9%) needed to improve their work posture. Spearman correlation statistical test results showed there was a relationship between age (p-value = 0,000), the length of work (p-value = 0,000), work posture (p-value = 0,009) with LBP complaints on back-office employees. **Conclusion:** Providing work facilities with ergonomic chairs and tables position and doing stretching in between work hours can reduce LBP complaints.

Keywords: Low back pain, Length of work, Work posture, Back-office employee

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INTRODUCTION

Based on Work Safety Law No. 1 of 1970 and Law of Health No. 23 of 1992 explains that every company should maintain the health and occupational safety of their employees (1,2,3,4). Occupational Safety and Health Management System (OSHAS) is a manifestation of the company's obligations and designed through the ISO 9000 Quality Management System approach and ISO 14000 Environmental Management System. Occupational Safety and Health is an activity to guarantee and protect the safety and health of workers through efforts to prevent work accidents and occupational diseases (4,5).

Occupational diseases are a common health problem throughout the world. Low back pain (LBP) is the main cause of disability that affects the work and general welfare of sufferers. LBP complaints can occur in everyone, both

gender, age, race, educational status, and profession (7). LBP prevalence in 2013 in Great Britain was 310 cases, and it is estimated that in 2014 there were 150 new cases. LBP prevalence in Indonesia is 18%. According to the Center for Disease Control and Prevention (CDC) in the American Academy of Pain Medicine of 100 million adults in America reported complaints of pain caused by migraine (16,1%), low back pain (28,1%), neck pain (15,17%), knee pain (19,5%), shoulder pain (9,0%), finger pain (7,6%) and hip pain (7,19%) (7). The prevalence of LBP increases with age and most often occurs at the age of the middle decade and the beginning of the fourth decade. The most common cause of LBP (85%) is non-specific, due to abnormalities in soft tissue, in the form of muscle injuries, ligaments, spasms, or muscle fatigue. Other serious causes include specific, vertebral fractures, infections, and tumors (8). Data from the International Labor Organization (ILO) in 2013, states that every 15 seconds 1 worker in the world dies due to an occupational accident and 160 suffers from occupational illness (8). In 2012 there were 2 million deaths due to accidents and occupational diseases. The results of the research of the Indonesian Neurologist Association (PERDOSSI) in 14 cities in Indonesia, 18,1%

had lower back pain (10).

The back-office section is a support system that handles sales administration and work stations that use computers as a primary tool in completing tasks such as fulfilling orders, invoices, recording receipts, and others (11). The computer can lighten the job, but the frequency is too often and does not pay attention to the position of ergonomics will pose a risk to workers. Risk factors associated with Musculoskeletal Disorder (MSDs) can arise such as prolonged static sitting postures, rigid postures on the head, neck, and shoulders that cause increased muscle activity in the cervical spine and shoulders (12). Workplace design, inappropriate posture, repetitive displacement, static posture, long hours of work without rest, and physical factors are ergonomic factors associated with MSDs (13).

Based on preliminary studies on 10 back-office employees at X Hospital, 90% of employees in the LBP minimal disability category were found and 10% of the employees were in the LBP moderate disability category. Based on this background, researchers are interested in researching the correlation between length of work and work posture with complaints of LBP among back-office employees at X Hospital in 2019.

MATERIALS AND METHODS

Samples

The population in the study were all back-office employees at X Hospital as many as 44 people. Sampling was done by the total sampling technique which is the same number of samples as the population (14), which is 44 back-office employees at X Hospital.

The design of this study is a descriptive analysis, with cross-sectional study design. Primary data collection techniques by collecting data related to work posture, length of work, and LBP complaints, while for secondary data the number of workers is known. Work posture risk assessment uses the Ovako Working posture Assessment System (OWAS) method, and LBP complaints are measured using the Modified Oswestry Low Back Pain Disability Questionnaire. Ovako Working posture Assessment System (OWAS), identifies the most common work postures for the back, arms, and legs, and the weight of the load handled (Table I). Whole body posture is described by these body parts. These categories indicating needs for ergonomic changes. Compared to other Techniques Rapid Upper Limb Assessment (RULA), OWAS and Rapid Entire Body Assessment (REBA) for assessing postural loads, to get the reliability for analyze posture should determine the type of work and the body posture were in balanced state (15). Ethical approval for this study was obtained from the Widya Dharma Husada Ethics Committee (Ref No: KE/127/01/2019).

Table I: Work Posture Assessment

Type of Activity	Work Posture	Score	OWAS Score
Typing Activity	The working attitude of the back bent forward	2	Category 2, Need improvement
	The working posture of the arms is at shoulder level	1	
	The working posture of the feet is in a sitting position	1	
	Weight in this work <10 kg	1	
Note Activity	The working attitude of the back section bends forward	2	Category 2, Need improvement
	The working posture of the arms is at shoulder level	1	
	The working attitude of the legs is in a sitting position	1	
	Weight in this work <10kg.	1	
Phone pick up activities	The working attitude on the back rotates and moves or bends sideways and forwards	4	Category 2, Need improvement
	The working posture of the arms is that both arms are below the shoulder height level	1	
	The working attitude of the legs is in a sitting position	1	
	Weight in this work <10 kg	1	

Statistical analysis

A descriptive analysis was performed for all variables. Statistical analysis of correlation was analyzed by the Spearman test. For all tests, statistical significance was defined by $p \leq 0.05$. All data were analyzed using SPSS VERSION 17. Values for measurements were presented as mean SD.

RESULTS

Age and Level of LBP complaints among the respondents

Based on the results of 44 respondents of the study, it is known that the majority the age of the respondents from 33 people (75%) were under 35 years old, and among them 18 people (40,9%) had an LBP complaints at a moderate disability level. The Spearman correlation test results obtained $p\text{-value} = 0,000 (<0.05)$, this shows that there is a relationship between age and LBP complaints (Table II).

Length of work

The results of the study of the distribution of work duration are known to the majority of respondents working >8 hours every day as many as 33 people (75%) and 18 people (40,9%) of whom have LBP complaints at moderate disability levels. Spearman correlation test results obtained $p\text{-value} = 0,000 (<0.005)$, it can be concluded that there is a relationship between the length of work with LBP complaints (Table II).

Work posture

Other studies explain that office workers involved in prolonged sitting during their work shift were more likely to report LBP (16,17). Other study established

Table II : Relationship Between Length of Work, Work Posture and LBP Complaints in Backoffice Employees

Category	Low Back Pain Complaint										Total	P-value	
	Minimal Disability		Moderate Disability		Severe Disability		Crippled	Bed Bound					
AGE													
Age ≤35 year	14	31,4%	18	40,9%	1	2,3%	0	0	0	0	33	75%	0,000
Age >35 year	1	2,3%	2	4,5%	8	18,2%	0	0	0	0	11	25%	
LENGH OF WORK													
Work ≤8 hour	9	20,5%	2	4,5%	0	0	0	0	0	0	11	25%	0,000
Work >8 hour	6	13,6%	18	40,9%	9	20,5%	0	0	0	0	33	75%	
WORK POSTURE													
There is no need for repair	4	9,1%	0	0	0	0	0	0	0	0	4	9,1	0,009
Repair needs to be done	11	25%	20	45,5%	9	20,5%	0	0	0	0	40	90,9	
Repairs need to be done as soon as or as soon as possible	0	0	0	0	0	0	0	0	0	0	0	0	
Repairs need to be done immediately	0	0	0	0	0	0	0	0	0	0	0	0	

risk factors for reporting LBP were frequent computer use and sitting for more than 2 hours per day during a workday (18,19,20). The results of the studies on work posture, most respondents need improvement as many as 40 people (90.9%) and 20 people (45.5%) of whom have LBP complaints at moderate disability levels. The Spearman correlation test results obtained p-value = 0.009 (<0.005), it can be concluded that there is a relationship between work posture and LBP complaints.

DISCUSSION

The first Low back pain complaint occurred at the age of 35 years and the level of complaints will continue to increase with age. In middle age, the strength and endurance of muscles begin to decrease so that the risk of muscle complaints can increase (20). This cannot be denied if young workers can potentially experience LBP complaints that are influenced by other factors such as working hours that exceed the normal limits and incorrect work posture.

The relationship between the length of work with LBP complaints, explain that someone who works for a long time will increasingly have the risk to experience LBP. Based on Workers Law No. 13 article 77 of 2003, explains the number of efficient working hours for a week is 7-8 hours of work each day. If working hours exceed these provisions, things will be found such as decreased work speed, health problems, absenteeism due to illness increases so that the level of work productivity is low (20).

Other studies explain that office workers involved in prolonged sitting during their work shift were more likely to report LBP (16,17). The relationship between work posture and LBP complaints explain from the other studies established risk factors for reporting LBP were frequent computer use by and sitting for more than 2 hours per day during a workday (18,19,20). Inappropriate

work posture can pose a risk of complaints on skeletal muscles. Unnatural work attitudes in general because of the characteristics of the demands of the task, work tools, and workplace are not in accordance with the abilities and limitations of workers (21). It is also appropriate according to Putranto (2014), that incorrect work postures and chairs and tables that are not ergonomic have the potential to cause LBP complaints.

CONCLUSION

Based on the results of this study, it is known that back-office employees have LBP complaints at moderate disability levels, 40.9% aged under 35 years, and working time over 8 hours, while 45.5% of employee work postures need improvement. The results of the analysis there is a correlation between the length of work, work posture with LBP complaints among back-office employees at X Hospital. So the need to provide ergonomic work facilities, especially in the back-office. Stretching interrupted work time can also be done by employees in utilizing a good time while working to reduce LBP complaints.

ACKNOWLEDGMENTS

This is supported by Widya Dharma Husada and Kharisma Persada School of Health Science and we would also like to thank those people who helped in this study, especially for our proofreaders and back-office employees of X Hospital.

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