

Effect Of Sport Massage And Circulo Massage On Work Productivity Improvement Of Physical Disability

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Abstract— The research intends at figuring out the difference of sport massage and circulo massage based on the direction of distal and proximal massage of people with physical disability in giving influence to the productivity of performance consisting of motivation, knowledge, skill and attitude. The discussion will be done by comparing the two combinations. The subjects used in this research are persons with monoplegia disabilities who participated in the State Integrated Disability Rehabilitation Center (BRTPD) program in Yogyakarta. The samples were taken from the existing population by Purposive Random Sampling. The data collection was obtained by questionnaire. The form of questionnaire work productivity consists of four: 1) motivation, 2) knowledge, 3) skill, 4) attitude. The data analysis technique used was by multivariate analysis with Repeated Measured test. The research results can provide recommendations on the most effective massage methods and training programs that can be applied to people with physical disability and to obtain criteria for measurement procedures to identify and improve work productivity in physical disability consisting of motivation, knowledge, skill and attitude. Both combinations of the training are expected to find out the effect on improving the productivity of work productivity on people with physical disability.

Keywords: *sports, circulo, massage, work productivity*

I. INTRODUCTION

Health development is an integral part of the development of human resources (HR), to achieve the development of an advanced, independent, and prosperous nation physically and spiritually. Human resource development starts from the womb to birth event far before paying attention to the toddler, school age, youth, and productive age to old age. Health promotion is the process of making people able to improve the control of health and to improve their health (Beaglehole, 1993). One of the goals of health promotion is to change behavior or provide information to the target leading to better behavior or give positive behavior, and give eliminate negative behavior.

Changes in social behavior are changes that occur due to discrepancies among different social elements in people's lives, resulting in new pattern of life. Social change includes changes in social values, social norms, social organization structures, social coatings, social groups, social interactions, patterns of behavior, power and authority, and various other aspects of community life [1]. [2] Social change is a change in social institutions in a society.

Social change can be concluded that there is a change in its social structure and function. Social change is closely related to cultural change and often social change is related

to cultural habit [3]. Social change is a process, covering the overall form of aspects of community life. The social changes that occur in community development are also needed to build the community and to build a society because every unit of society has community power [4].

The health life status of community is determined by the health conditions of the citizens, including the condition of parents, adolescents, and children. Effort to improve public health becomes the major program in order to improve the quality of family life through community education. Regarding this, the role of family and school becomes important, as the realization of ideas formulated in the national development goals. The realization of quality generation is for the development of the nation and state, including for people with disabilities. People with 'different abilities', namely people who have different abilities from both people physically and mentally [5]. All limitations that are owned by the community cannot be used as an excuse for them or anyone to carry out social restrictions either directly or indirectly. This social limitation occurs when those who have physical limitations have been grouped in disability foundations or in special schools, and social restrictions are increasingly evident when the environment around us, city public spaces actually causes every step of their crutches to stumble, every their wheelchairs stopped, every swing of their blind white stick is blocked, and every sign language ignored by the community.

The productivity of disability workers by providing various skills has been sought by the Government of Indonesia. Through the program at the Rehabilitation Center for Disabled People, people with disabilities are trained to have various skills. Productivity itself is an ability to produce something. A high level of productivity can be achieved with several supporting factors. The supporting factors include: Education, skills, attitudes, and work ethics, income level, social security, social level, and work climate, motivation, nutrition and health, individual relations, technology, and production.

Giving skills to people with disabilities is the fulfilment of needs that are in accordance with the needs based on the potential they have and can be further enhanced towards independence. Through skills training programs aimed at people with disabilities, especially the provision of training in sports massage and circulo massage types, they are expected to have more decent quality of life and can break the perception that people with disabilities will only be a burden on their lives by begging in somewhere.

II. METHOD

A. Design and Sample

This research was quantitative research by using quasi-experimental research method. The treatment group was measured by giving a type of massage that uses a Sport Massage and Circulo Massage technique with distal and proximal massage directions to increase work productivity in disabled people. The research used 2x2 factorial design. In this research, the population was people with disabilities specifically monoplegia disabled people who have the following characteristics:

1. Male sex
2. Age 20-30 years old
3. Physical disability / disability is only one limb that is paralyzed at the bottom
4. Persons with disabilities who participate in the program at the Integrated Rehabilitation Center for Disabled People (BRTPD) in Pundong District, Bantul Regency, Special Region of Yogyakarta who were going to schools and those who were not.

The samples in this research were taken from the existing population by using Purposive Random Sampling. The size of the sample was determined by the formula of Isaac and Michael [6].

B. Data Collection and Research Instrument

Data collection was obtained by using questionnaire. The instrument used to measure work productivity in this research used the questionnaire consisting of four influencing factors, namely: 1) motivation, 2) knowledge, 3) skills, and 4) attitude.

C. Data Analysis Technique

Data analysis technique used in this research is as follows:

1. Prerequisite Test
 - a. The normality test was conducted to test whether the analyzed variables had data distribution that is normally distributed or not. Data normality test was carried out by using Kolmogorov Smirnov Z.
 - b. The homogeneity test was used to test the similarity of the variance in the results of the data on each treatment group. Homogeneity test was performed on the research data of the pretest and posttest observations. The statistical test used to test the homogeneity of variance was the F-test, which compared the largest variance with the smallest variance.
 - c. T test was done to find out whether there were differences in variables in each group. The results of the analysis stated that there was difference if the significance value that was less than 0.05 ($P < 0.05$).
2. Hypothesis Test

Multivariate analysis (MANOVA) by Repeated Measured test was conducted to test the hypothesis, that is to find out the difference of the dependent variable and the independent variable more than one with significance level of 0.05.

III. FINDINGS AND DISCUSSION

A. Research Result

Based on the results of MANOVA analysis on the training method, it is obtained p value < 0.05 (sig. smaller than 0.05), so that the sport massage training method from distal direction (cell 1), sport massage training method from the proximal direction (cell 2), circulo distal massage (cell 3), and circulo massage from proximal direction (cell 4), using four statistical models, namely: 1) Pillai's Trace, 2) Wilks' Lambda, 3) Hotelling's Trace and 4) Roy's Largest Root, is obtained significance value 0,000, smaller than 0.05 ($p < 0.05$), so it can be said that the sport massage training method from the distal direction (cell 1), training of sport massage from the proximal direction (cell 2), circulo massage from the distal direction (cell 3), and circulo massage from the proximal direction (cell 4), have significant effect on increasing work productivity which consists of motivation, knowledge, skills, and attitudes.

Based on the results of MANOVA analysis on the circuit training method and circuit trapping combined with the direction of massage from distal and proximal, thus, the following conclusions can be drawn:

1. the most effective motivational improvement is in cell 1.2 which is by using the sport massage training method from proximal direction.
2. the most effective increase in knowledge in cell 1.1 is by using the sport massage training method from the distal direction
3. the most effective skill and attitude improvement in cell 2.1 is by using the circulo massage method from the distal direction.

The summary of lower bound of 4 (four) cells based on confidence interval can be seen in the following table:

Table 1. Summary of Lower Bound

Massage Method	Dependent Variable (Work Productivity)	Direction of Massage	
		Distal	Proximal
		Lower bound	Lower bound
Sport Massage	Motivation	48	52
	Knowledge	53	50
	Skill	48	47
	Attitude	51	49
Circulo Massage	Motivation	51	50
	Knowledge	52	51
	Skill	54	50
	Attitude	55	52

B. Discussion

The results of this study indicate that there are the most effective massage training methods to increase motivation, knowledge, skills, and attitudes. The most effective massage training to increase motivation is the sport massage method from the proximal direction. The most effective massage training to increase knowledge is the sport massage method from the distal direction. While the most effective training method to improve skills and attitudes is the circulo massage method from the distal direction. So it can be concluded that the most effective massage training method to increase the work productivity component is the circulo massage method from the distal direction because in all dependent variables the changes are significant and there are three variables that experience the highest changes, namely skills and attitudes.

Circulo massage is a massage with the main target of blood and lymph circulation with the mainstay technique of friction. Circulo massage aims to restore fatigue and get fitness. Circulo massage produces endorphins derived from

friction movements. The function of endorphins is as sedative. Circulo massage also produces thyroxine hormone which aims to facilitate the body's metabolism. Thyroxine hormone is obtained from effleurage and tapotement techniques. Adrenaline hormones are also produced by circulo massage by using tapotement technique that aims to stimulate the sympathetic nerves [7]. The research [8] shows that hand massage can cause relaxation and calmness.

1. Difference of Sport Massage and Circulo Massage Training Method

This research shows that differences in sports massage and circulo massage training methods can have an effect on work productivity which consists of motivation, knowledge, skills and attitudes. Differences in training methods that can make greater contribution to the improvement of skills and attitudes in the circulo massage training method when compared to the sports massage training method. Sport massage training method can contribute more to increasing motivation and knowledge than the circulo massage method.

Sport massage has various manipulations, including: efflurage (rubbing), petrissage (shuffling), shaking, tapotement (hitting), friction, walken, vibration (vibrating), stroking (sorting), skin-rolling (folding the skin), chiropractic (tapping). Sport massage can produce several hormones such as endorphins, adrenaline and thyroxine. Endorphins are obtained from effleurage and friction techniques. Endorphins are tranquilizing hormones. Thyroxine hormone derives from petrissage movement techniques, tapotement, effleurage, shaking, walken. The hormone aims to transport the remains of the body's metabolism. Adrenaline hormone aims to control the nervous system, obtained by the tapotement movement. Sport massage stimulates the peripheral nerves from tapotement, stroking, effleurage [9].

The mainstay technique in circulo massage is friction with circular motion. The tapotement is intended to maximize the results of friction, and effleurage is intended for calming down. At the beginning of the massage, it is intentionally immediately given friction to cause shock and stimulate the release of endorphins hormone that function as tranquilizers. All body parts start from the soles of the feet until the head will be manipulated in this circulo massage by considering the arrangement of muscles and the way the organs work. Manipulation or grip is a method of using the hands to perform circulo massage in certain areas, as well as giving certain influences. The various circulo massage manipulations used include: friction, tapotement, walken (pulling and pushing), effleurage (rubbing), and skin rolling (folding the skin) [10].

2. Difference of Distal and Proximal Massage Direction

The research shows that there are significant differences in the direction of massage from distal and proximal to increasing work productivity which consists of motivation, knowledge, skills and attitudes. The difference in massage direction that gives the biggest contribution to the increase in motivation, knowledge, skills, and attitude is found in the direction of massage from the distal when compared to the massage direction from proximal.

In various studies, it is stated that the samples who received training have better attitude after participating in the training program [11]. [12] Physical rehabilitation of athletes with disabilities with massage can encourage the development of compensation mechanisms, restore and enhance the ability of manipulative actions, improve

pathological conditions associated with the underlying disease and related ones. The medium of physical rehabilitation improves the application of the thermoregulation process, stimulates the work of peripheral vessels, increases metabolism, and improves regional blood flow.

3. Interaction of Massage Training Method with Massage Direction

This research shows that there is significant interaction between sport massage and circulo massage training methods with distal and proximal massage directions on work productivity which consists of motivation, knowledge, skills and attitudes. This significant interaction shows that in all four treatment groups combining sport massage and circulo massage training methods with distal and proximal massage directions, they can have effect on increasing work productivity.

[13] Massage therapy benefits for Attention Deficit Disease Activity Disorder (ADHD) students by improving short-term mood and long-term class behavior. [14] Massage cupping is no more effective than progressive muscle relaxation in reducing chronic non-specific neck pain. Both massage cupping therapies and Progressive Muscle Relaxation (PMR) can be easily used at home and can reduce pain at a low, low clinical level. However, cupping massage may be better than PMR in improving well-being and reducing the sensitivity of pressure pain but more research with larger samples and longer follow-up periods is needed to confirm these results.

Based on the discussion of the research results on the effect of sport massage and circulo massage training with distal and proximal massage directions on work productivity consisting of motivation, knowledge, skills and attitudes, it can be seen as a whole in the following table:

Table. 2
Summary of Research Result of the Training Method

No	Training Method	Result
1.	Sport massage with distal massage direction	Biggest Increase on Knowledge Variable
2.	Sport massage with proximal massage direction	Biggest Increase on Motivation
3.	Circulo massage with distal massage direction	Biggest Increase on Skill and Attitude
4.	Circulo massage with proximal massage direction	Training method with no significant result on one of the variables, but all variables increase.

IV. CONCLUSION

Based on the research results on the effect of sports massage and circulo massage training with distal and proximal massage directions on work productivity consisting of motivation, knowledge, skills and attitudes, the following conclusions can be drawn:

1. Sports massage and circulo massage training methods can have effect on work productivity. Increased knowledge and motivation variables are more effective using sport massage training method. While the increase in skill and attitude variable is more effective using circulo massage training method.

2. There is significant difference in the direction of massage from distal and proximal to increasing work productivity. The difference in massage direction that gives the biggest contribution to the increase in motivation, knowledge, skills, and attitude is found in the direction of massage from the distal when compared to the massage direction from proximal.
3. There is significant interaction of sports massage and circulo massage training methods with distal and proximal massage directions towards work productivity.

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