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Implementation Of Health Innovations For Patients With Kyphos Through Therapy Jacket Registered Patent And Copyright

Aldi Adi Pratama[a] Aprilia Tri Purwandari[b]

[a]Universitas Al Azhar Indonesia, Jakarta, Indonesia
[b]Universitas Al Azhar Indonesia, Jakarta, Indonesia

A B S T R A C T

This activity is intended to provide an alternative healing through Therapy Jackets which were previously the result of an innovative 2021 student creativity program. The main problem faced by patients is severe pain when they want to stand up from a sitting position. The results of these products are used in advanced community service, by conducting therapeutic trials on two yield patients, with the aim of reducing the degree of bending in one month. The first patient experienced a decrease in the degree of bending on the fifth to eighth day of therapy from 36° and experienced a change on the fifth day with a value of 35.6°. Subsequent changes occurred on the sixth day 35.5°, seventh 35° and eighth 34.9°. The second patient experienced a decrease in the degree of bending on the fifth to sixth day of therapy from a bending value of 38°, and experienced a change on the fifth day with a value of 37°. Subsequent changes occurred on the sixth to the eighth day 36.7°. This product has also been filed for patent registration with application number S00202106605 and copyright registration with registration number 000266965.

Keywords: Copyrights, Patents, Jacket, Kyphosis, Therapy

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I. INTRODUCTION

Along with the development of the industrial age, as well as science and technology, it also influences the activities of human life itself. What's more, during this pandemic era, people's work tends to be on laptops or gadgets. The activities that we do every day often cause disturbances in the movement and function of our bodies. High movement in people who work in long and sedentary positions tends to cause disturbances in body posture. Reduced posture capacity and endurance will increase the risk of violations in performing job desk, which in turn will increase the chances of work accidents [1]. In developing countries like Indonesia, many pay less attention to body posture when on the move. Posture is a part of physical health that cannot be separated. In addition, posture is also related to the scope of ergonomics. Ergonomics risk factors are the range of attitudes or work environment that can cause the position of body parts to move in an uncomfortable manner which can cause various problems in a job, both health problems and work accident problems [2]. Aguilar & Gallegos explain the benefits of posture related to several things, namely pain, breathing, stress, digestion, circulation, aesthetics, non-verbal communication, flexibility, athlete performance, stability of fat levels, energy and libido [3]. The low level of public awareness of the importance of normal posture causes many disorders resulting from bad posture. The development of technology and education which is quite rapid in Indonesia also has an influence, such as the use of backpacks with heavy loads for a long time will affect posture deviations [4].

In the development of the science of physiotherapy, efforts in the field of movement health and bodily functions have experienced many developments. The movement referred to in physiotherapy is not only movement in the limbs such as hands and feet, but includes movement from the cellular level to the individual level. Therefore, a healing therapy jacket for kyphosis sufferers was created. The main goal to be achieved in jackets with this physiotherapy method is to provide functional movement improvement services. In this case, physiotherapy techniques provide health services for movement and function problems

The problems encountered by the author based on information on literature selection, namely posture deviations that are not in accordance with the alignment, namely the placement of body positions related to gravity and base of support which is not appropriate. Postural deviations can be scoliosis, lordosis, kyfolordosis, kyphoscoliosis and kyphosis. In particular, kyphosis will cause a decrease in the quality of human life. For example, not being able to work in a sitting position for too long due to the displacement of the fulcrum on the body resulting in an imbalance of work of the muscles, breathing becomes shorter due to the expansion of the piston cannot be maximized due to a hunched posture, feeling tired quickly due to decreased piston expansion, the ductus fluid thoracicus becomes not smooth, the mobilization of internal organs is disturbed. It is not known with certainty the prevalence and incidence of kyphosis in Indonesia, the prevalence and incidence of thoracic kyphosis in the elderly varies between

* *Corresponding author.*
E-mail address: aldiadipratama20839aldi@apps.ipb.ac.id

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20% - 40% for both men and women, after the age of 40 years women tend to experience an increase in the kyphosis curve faster than men.

II. METHODOLOGY

The implementation method carried out by the author uses literature study and a participatory approach to two patients, with the criteria of having kyphosis. The literature study method is a form of collecting data sources from reference books and scientific journal articles. The process of collecting library data includes reading and note-taking studies, then processing the information based on a selection system, and is used to answer the formulation of the problem to be solved [5] .Collection of problem identification data related to kyphosis sufferers. Kyphosis is a form of abnormality that appears in the human spine which causes the elderly to have a stooped posture. As a result of this change, one of the risks of balance disorders is the risk of falling [6]. Participation is closely related to community empowerment. The success or failure of empowerment can be seen from the form of community participation and what the community's mindset is like [7]. The implementation method used by the author can be seen in Figure 1 as a reference and guideline for community service activities (Figure 1).

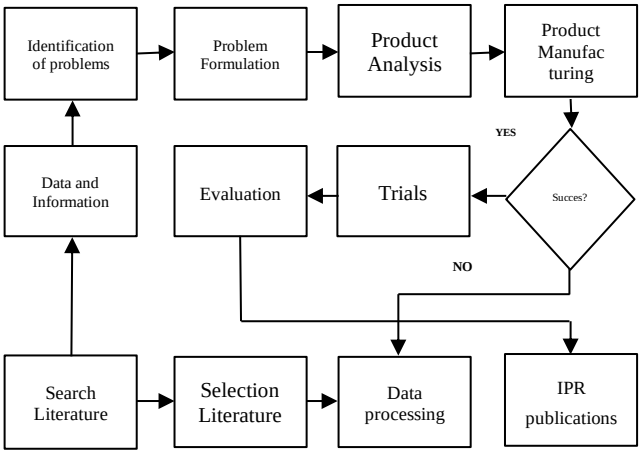

Figure 1 Implementation Method Flow

The flow of the research method begins with identifying problems in patients with kyphosis, by prioritizing health ethics. The identification of the problem that the author found was pain due to a feeling of pressure on the bent bones when going to a standing position from a sitting position. Identification of these problems will later be strengthened by data results and tracking information literature References. Then these results will be developed in the creation of functional product works. The results that have been declared as finished products will then be tested on people with kyphosis. The author conducted a therapy trial on two patients as a form of comparison of therapy carried out for one month, with a one-week coverage of therapy on Wednesdays and Fridays. The allocation of therapy time is carried out in two hours.

The results of the therapy test which was carried out for one month, then the authors conducted an evaluation, regarding the negative risk if pain or injury was found during the therapy process, and qualitative data processing was carried out. As well as a positive evaluation, if a decrease in the degree of bending is found as quantitative data. From this qualitative and quantitative data, the authors registered copyrights and patents for the layout structure and jacket guidelines in order to foster public confidence in using therapeutic jackets, without fear of causing serious injury. Therefore community service activities are said to be successful if the author's findings have a sense of public trust in the long term.

III. RESULTS AND DISCUSSION

The results of the innovation of creating therapeutic jacket finished products were successfully carried out by carrying out 3D designs before production, with a combination brace waist and sensor therapy reminder. The results of this creation prioritize the functional therapeutic tools, for the gradual healing process of kyphosis sufferers. This innovation is the result of the 2021 student creativity program innovation, and will be implemented for community service activities to be carried out in August 2022 (Figure 2).

Figure 2 Therapy Jacket Design

The therapy process was carried out for one month on two patients with kyphosis, with patient 1 having a 36° degree of kyphosis and patient 2 having a 38° degree of bending. The process of measuring degrees is carried out by a doctor controlling each patient, because each patient is accompanied by a health worker. The results of the development of the degree of forward curvature can be seen in Table 1 below:

Table 1 Data on the Development of Therapy on the Degree of Bending

No	Days To -	Patient 1	Patient 2
1	First	36°	38°
2	Second	36°	38°
3	Third	36°	38°
4	Fourth	36°	38°
5	Fifth	35,6°	37°
6	Sixth	35,5°	36,7°

No	Days To -	Patient 1	Patient 2
7	Seventh	35°	36,7°
8	Eight	34,9°	36,7°

Source : Data Processed by the Author (2022)

The therapy process, which was carried out for one month, was said to be successful, because there was a decrease in the degree of bending of patients one and two. As a form of illustrating a decrease in the degree of bending, the author performs a visualization diagram which can be seen in Figure 3 below

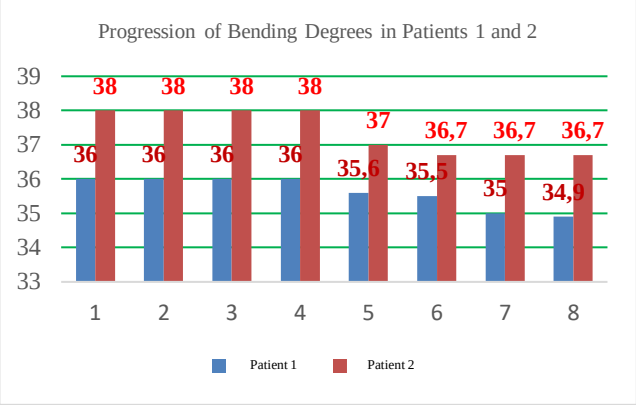

Figure 3 Data on the Developmental Degree of Bending in Patients 1 and 2
Source : Data Processed by the Author (2022)

The next stage of activity is to evaluate the first and second patients, whether they have pain during the therapy process in one month. From the results of collecting qualitative data using a throwing examination, it was found that all patients did not feel severe pain while wearing a therapy jacket. Then as a form of maintaining support for public trust in wearing therapeutic jackets in a sustainable manner, the author registers Ownership of Patents and Copyrights for product innovation works. Patent registration has been filed with application number S00202106605 and copyright registration with registration number 000266965. Another purpose of this IPR application is legal protection for creators of products owned by individuals or groups.

IV. CONCLUSIONS

Based on the writing of Community Service Activities, it can be concluded that the identification of the creation of Therapy Jackets includes:

a. The results of creating a Therapeutic Jacket product using component functions brace waist and sensors reminder carried out simultaneously in a gradual therapeutic process.
b. The results of therapy using the Kyphosis Jacket for two patients were said to be successful with proven healing data in the form of a decrease in the degree of bending in one month.
c. The first patient experienced a decrease in the degree of bending on the fifth to eighth day of therapy. The initial condition of the first patient had a bending value of 36° and changed on the fifth day with a value of 35.6°. Subsequent changes occurred on the sixth day 35.5°, seventh 35° and eighth 34.9°.
d. The second patient experienced a decrease in the degree of bending on the fifth to sixth day of therapy. The initial condition of the first patient had a bending value of 38° and changed on the fifth day with a value of 37°. The next change occurred on the sixth day of 36.7° and had the same value until the eighth day.
e. Authors register ownership of patents and copyrights for product innovation works with the aim of increasing public trust. Patent registration has been filed with application number S00202106605 and copyright registration with registration number 000266965.

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