



Development of Portable Massage Bed

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Abstract

The development of various models of massage beds, ranging from simple to new innovations that provide more comfort and facilities that can be adjusted to your needs. The frequently used massage beds have a permanent shape, so they are difficult to carry and move when used. Portable massage beds are designed to make it easier to use from one location to another, save space, and can be adjusted according to the masseur's needs. This research aims to find out the specifications of portable massage bed products that are suitable for masseurs and patients. The sample in this study was a small scale trial of 6 masseurs at the massage clinic at Bina Darma University, Palembang, and subjects for a large scale trial were 10 people consisting of 6 masseurs and 4 patients at the massage clinic at Bina Darma University, Palembang. The stages of model development carried out are the model analysis, design and development (ADD) stages. The instrument used in this research was a questionnaire. The expert validity test results used the Content Validity Index (CVI) and Content Validity Ratio (CVR) with an average CVR value of 0.35. Based on the results of this research, it was found that the development of the portable massage bed model had good product quality as a place for patient massage. Then this model can be tested in the field on either a small or large scale (empirical validation).



INTRODUCTION

Sport is an activity that involves a lot of body movement, so it can cause a problem in the human movement system called injury. Sports injuries are damage to the musculoskeletal and skeletal systems caused by sports activities (Utomo & Wahyudi, 2021). As a result of sports activities that are often carried out, many people experience disorders of the muscles, joints and bones caused by frequent high-intensity movements (Ita et al., 2022). If this happens, a coach or athlete must be able to handle injuries properly, and if it is not handled properly, it is feared that it can cause more fatal consequences, such as abnormalities in the bones (defects) and can even result in death (Flashcard & Sekolah, 2020). The types of injuries that are often encountered in sports such as fatigue, cramps, broken bones, trauma (impact), concussion, fainting and so on (Alimuddin & Mulyaningsih, 2019).

Sport massage can be used as a means to relax the body and get rid of fatigue after doing sports, because with massage muscles can be moved passively, massage can stimulate the nervous system which affects muscle relaxation as well as their construction phase and blood vessel dilation. According to Endang Triyanto (2014: 5) "Massage therapy which is carried out for 30-45 minutes 3 times a week can reduce muscle tension and relax their body". Sports massage according to Bambang Priyonoadi is a type of health massage that is specifically given to people who are healthy in body, especially athletes. This message prioritizes its effect, namely blood circulation. Sport massage or sports massage is a way of massage by using their hands which are massage on the muscles of the body (Yuliawan & Indrayana, 2021).

Sport massage is a treatment that can make an individual relax and improve blood circulation. Sport massage is specifically designed to prioritize their smooth circulation of blood and fluids in their body, if it is done by rubbing, massaging, and hitting their skin and muscle are as properly (Reified & Haryanto, 2022).

Sport massage is a kind of manipulation involving hand movements, to stimulate, relax, reduce tension and fatigue in athletes and players who have been doing sports activities (Putri et al., 2022). Sport massage is needed not only by athletes (professional and amateur) but also for those who have non-sports activities, but do a lot of activities/work, for example mothers who often carry their young children and office workers who often sit in front of a computer for long periods of time. Which is old (Iksan et al., 2021). Sport massage is very influential in reducing anxiety, improving blood circulation. Massage massage is a manipulation of soft tissue structures that are applied to the human body to create a feeling of calm, comfort, relaxation, and reduce pain (Musrifin & Bausad, 2019).

The sports massage technique that is widely used is called the manipulation technique, where the manipulation movements are movements on the patient's body during massage (Saputra & Utomo, 2021). The movements or techniques are effleurage, petrissage, shaking, friction, tapotement, walkin, skin rolling, and vibration. In doing this technique must be mastered in order to get maximum results and benefits (Miri et al., 2023). The use of massage birds that are often used as a permanent shape, so that it is difficult to carry and move when using it. The need for their latest innovations which can provide advantages over permanent massage beads. Portable massage beads are designed to make it easier to use from one

location to another, save space, and can be adjusted according to their masseur's needs. From these advantages portable massage beds are very efficient to use. This convenience makes many enthusiasts switch from permanent massage beds to portable massage beds (Helaprahara et al., 2022).

Sport Massage is a series of special massage techniques/methods intended for their needs of an athlete or athlete. Where is the way of massage by using their hands which are massaged on the muscles of the body. The Sport Massage manipulation technique is specifically designed to prioritize smooth circulation and fluids in the body if they scrubbing, massaging and beating of their skin and muscle are carried out correctly (Sari, 2016). Sport massage or sports massage is a massage treatment that treats the physiological and psychological systems of athletes. Sports massage is usually done before and after sports activities. If sports massage is done before sports activities, then it is very helpful in elongating and loosening the soft tissue on a person's body (Prasetyo & Nugroho, 2023). In general, the purpose of sports massage is as follows: 1. Promote blood circulation, especially towards venous blood or venous blood towards the heart. The smooth circulation of blood will further speed up the process of removing the remains of combustion and the spread of nutrients to their tissues. 2. Stimulate innervation, especially the peripheral nerves (peripherals) to increase their sensitivity to stimuli 3. Increase muscle tension (tonus) and muscle elasticity and elasticity to enhance their working power. 4. Clean and smooth the skin (Miri et al., 2023).

The therapist's comfort when doing sports massage is influenced by several factors such as a safe and comfortable environment, the massage bed used by the patient, and the equipment used to do sports massage. Bed massage is very influential on the comfort of the therapist when doing sports massage, weierwei when the bed massage i can be adjusted according to their needs of the patient and masseur/therapist it will make it easier for the therapist to do massage. In addition, if they bed massage is used appropriately it will reduce the level of therapist fatigue when doing sports massage (Shen et al., 2021). In the use of bed massage, which is often used by therapists, ideally bed massage can be arranged for the patient to be able to lie face down, on his back or in a semi-sitting position as well as various variations of the angle of their massage bed. Setting the angle on the massage bed is rarely possible on a permanent massage bed. Thus, the formation of a new innovation of portable massage beds where the product can be adjusted to the degree of inclination of their angles. Setting the angle of the portable massage bed serves as an adjustment in providing sports massage (Wibowo & Tsaqif, 2021)

Portable massage bed is designed according to the masseur's height. This aims to make it easier for masseurs to do sport massage so it doesn't interfere with masseur's performance. If the message bed used is too high, it will tire their arm muscles and fingers of the massager because the massager cannot use his body weight when doing sports massage. Conversely, if they massage bed is too low, it can cause fatigue in their back muscles of the thei rapist who keeps bending and looking (Akhmad et al., 2021). The following portable massage bed designs will be developed:

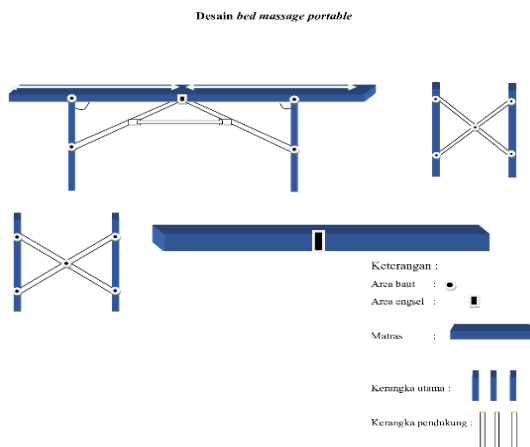


Figure 1. Desain Bed Massage Portable

METHODS

This study uses a research and development (R&D) model, which is a research method used to produce certain products. And test the effectiveness of their product. So that it can produce certain products that can be used. This research requires analysis and to test the effectiveness of the product being developed so that it can function in the wider community, research is needed to test their product (Sugiyono, 2020). The development model that can be used in this development is the ADDIE model, which is one of the systematic learning design models. The selection of their model is based on several considerations that this model is developed systematically and in accordance with their learning

design. There are 5 steps in developing this model, name ily (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation (Fikri, 2023).

The subjects of the small-scale trial were 6 masseurs at the Bina Darma University Palembang massage clinic, and 10 large-scale trial subjects consisting of 6 masseurs and 4 patients at the Bina Darma University Palembang massage clinic.

RESULTS

In this study, the instrument used was a validation/assessment sheet by experts. The results of the expert validity test use the Content Validity Index (CVI) and their Content Validity Ratio (CVR). As for 4 The experts in this study were 1 construction expert, 1 massage expert, 1 sports health expert, and 1 sports education expert. Based on the results of the study (table 1), it was found that the development of a portable massage bed model has good product quality as a place for patient massage. Then this model can be tested in the field either on a small or large scale (empirical validation).

Tabel 1. Expert Input Results

No	Expert	Value	Percentage (%)
1.	Construction	39	97,5%
2.	Massage	34	85%
3.	Sport Health	40	100%
4.	Sport Education	33	82,5%

Tabel 2. CVI dan CVR Analysis

No	E1	E2	E3	E4	ne	N	N/2	ne- (N/2)	CV R	Criteria
1	4	3	4	4	3	4	2	1	0.5	valid
2	3	3	4	4	2	4	2	0	0	valid
3	3	3	4	4	2	4	2	0	0	valid
4	4	3	4	4	3	4	2	1	0.5	valid
5	3	4	4	4	3	4	2	1	0.5	valid
6	3	4	4	4	3	4	2	1	0.5	valid
7	4	3	3	4	2	4	2	0	0	valid
8	3	4	4	4	3	4	2	1	0.5	valid
9	3	4	4	4	3	4	2	1	0.5	valid
10	3	3	4	4	2	4	2	1	0.5	valid
Amount	33	34	39	40			Amount		3.5	
Average	3.3	3.4	3.9	4			Average		0.35	Valid
Average			3.65							

The portable massage bed model can be used by masseurs as an alternative to the massage bid model that can be used because it can be adjusted to the patient's comfort. In addition, this portable massage bed model can make it easier for their massager to be moved and can be folded. The advantage of this portable massage bed is that it can be carried anywhere and has ergonomic value and is much lighter than a permanent massage bed. This portable massage bed development model is highly recommended for massage clinics because it can be adapted to their needs of the clinic.



Figure 2. Bed Massage Portable

DISCUSSION

Based on research and validation twists by 4 experts, that the results of the construction experts assessment obtained a value of 97.5%, declared worthy of being twisted. Then, the results of the assessment from the massage expert obtained a value of 85%, meaning that the product met the product eligibility standards. Furthermore, the results of their assessment from sports health experts get a value of 100%, meaning that the product meets the standards and is suitable for testing. And the assessment of sports education experts gets a value of 82.5%, meaning that their product is worth trying out. According to the CVI and CVR analysis results, 10 product evaluations have been carried out and their product is declared valid and me its product standards. From the research results and expert validation, it was found that portable massage bed products are suitable for use by patients and sport massage therapists. Besides that, portable massage beds also have several advantages that can improve the quality and comfort of patients, namely that they can be adjusted to the needs of patients

and masseurs, then have ergonomic values so they are easy to use. This study shows that portable massage beds really need to be developed for massage clinics in order to provide more hope by being able to provide high quality service.

CONCLUSION

Based on validation analysis by experts, the portable massage bed model can make it easier for masseurs to perform massage because it can be adjusted according to the position required by the masseur and can be adjusted according to the patient's comfort. These results are seen from the analysis of CVR and CVI tests, as well as portable massage bed product specifications supported by expert assessments. So this model is recommended for use in massage clinics. Suggestions for further research are to consider product advantages and add patient satisfaction variables in developing portable massage beds.

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