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Effectiveness of Manurak Therapy in Increasing Range of Motion and Reducing Pain in Wrist Injury Patients

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ABSTRACT: Everyday activities are impacted by wrist injuries, which are widespread in society. Manurak treatment can be used to treat wrist injuries. Stretching exercises and PNF are added to massage as part of Manurak therapy (both manual and motor). This study sought to ascertain how well Manurak therapy worked to improve range of motion and lessen wrist injury discomfort. Using a single-group pretest-posttest design and a pre-experimental research design, the study employed a quantitative descriptive methodology. Patients with wrist injuries served as the study's subjects, and 21 participants in all attended Mafaza massage treatment courses. A Neumerik analogue pain scale and a goniometer for assessing range of motion (ROM) were the tools employed in this investigation. The duration of the Manurak therapy session was thirty minutes. With a significance level of $p<0.05$, the paired t-test was the method used to analyze the data for this study. The study's findings demonstrated that the pretest and posttest differed significantly. For the pretest pain measurements, the mean values were efferent 43.52°, flexion 74.38°, extension 73.76°, extrapolation 33.38°, and 65.29. Pain was 42.33, flexion was 82.29°, extension was 81.33°, extrapolation was 39.71°, and efferent was 50.81°, according to the posttest mean results. With power levels of 35.16% for pain, 10.63% for flexion, 10.26% for extension, 18.96% for extrapolation, and 16.75% for efferent, the paired t-test results were significant at the 0.000 level. According to the study's findings, Manurak therapy can help patients with wrist injuries by increasing their range of motion (ROM) and reducing their pain.

KEYWORDS: manurak therapy, range of motion, pain, wrist injury

INTRODUCTION

Every human being has a job or activity that requires physical activity. After doing sports activities we often feel tired, sore muscles and pain (Santika et al., 2020; Subekti et al., 2021). Physical fatigue is generally caused by activities that exceed physical abilities (Ambarawati et al., 2021; Steege & Rainbow, 2017). To overcome the pain or soreness, the body needs adequate recovery so that it becomes (Hidayatullah & Nurrizqi, 2023).

The upper limbs play an important role in daily activities (Choi et al., 2024). Human activities will not be separated from the movement of the wrist and fingers (Sari & Herawati, 2025). The hand is a limb that has high mobility and has a wide scope of motion, so if the hand is injured it will interfere with daily activities. The wrist joint is a biaxial joint with flexion, extension, infersion, and effersion movements (Eschweiler et al., 2022). The grip becomes wider as the thumb moves away from the palm and increases the contact area between the palm and the object (Rehman et al., 2022; Soysal et al., 2021). Limiting the range of motion of thumb extension may impair the capacity of the hand to generate maximal grip force (Gowda et al., 2025; Vikranth, 2015). The therapist's capacity to perform manual treatments efficiently may be jeopardized by decreased hand grip strength, which may result in poor work outcomes and a higher risk of occupational injury (Monsabert et al., 2020).

Based on observations that have been made at the Mafaza Massage Therapy Workshop, in October to January there were 119 patients with wrist injuries out of a total of 1702 patients. Patients with complaints of wrist injuries are mostly experienced by adults. The symptoms experienced by patients are inflammation or inflammation in the wrist area characterized by tumor (swelling), dolor (pain), rubor (red), kalor (heat), and fungsio leisa (tissue damage) which causes range of motion (ROM) to be disrupted (Jabar et al., 2023).

According to (Sulaiman, 2024) as time progresses, treatment or rehabilitation of injuries is also growing. Medical treatment is now starting to use sophisticated equipment that has been tested in various studies. There are pharmacological and

non-pharmacological treatments proposed for this condition, and among them, massage therapy is considered a useful treatment, offering benefits such as increased mobility and stress reduction (Salvi & Londhe, 2025). According to (Radziejowska et al., 2020), massage is a manual therapy that has been demonstrated to reduce pain, relax muscles, increase blood flow, relax nerves to encourage regeneration, and enhance joint function. Numerous massage techniques, such as Swedish massage, deep tissue massage, soft tissue massage, sports massage, and diet massage, have been created. Every masseuse gives massages in accordance with their intended role and goal. According to (Deetz & Petrie, 2022; Hasanpour-Dehkordi et al., 2021; Romanowski et al., 2017), sports massage can be utilized for rehabilitation from injuries, relaxation, and reflexology. Frirage, on the other hand, tries to ease pain and mend joints. Patients with painful injuries to various body regions can benefit from massage treatment as a manual therapy when it is administered with the right frequency, intensity, and volume (Ndayisenga et al., 2024; Priyonoadi et al., 2020; Yuniana et al., 2022; Zhang et al., 2022).

Massage therapy can be applied to all areas of life (Kennedy et al., 2016). It encompasses a variety of techniques, styles, and durations and should be performed by specially trained and certified therapists (Mak et al., 2024). Original research reports on massage therapy provided by a variety of health professionals such as physical therapists, physiotherapists, and nurses (Furlan et al., 2015; Smith et al., 2018). This therapy is currently considered the most effective way to relieve fatigue or pain after exertion (Prasetya et al., 2024), pain (Cuenca-Martínez et al., 2022; Muñoz-Gómez et al., 2024) restore range of motion, and improve muscle strength and function (Gutiérrez-Espinoza et al., 2022; Skirven et al., 2020).

Research (Anggriawan et al., 2022) shows massage and exercise therapy show a significant decrease in pain complaints, increased motion function and increased range of motion (ROM). The study concluded that frirage massage has significant effectiveness in dealing with disorders or decreased range of motion (ROM) in patients with wrist injuries. Apart from using the frirage masque method, there are also many other masage manipulations to treat or rehabilitate injuries, one of which is manurak therapy. Manurak therapy has been developed at FIK UNY, is a method to overcome various injuries that have been tested in various studies

Manurak (manual and motion), what is meant by manual is the provision of masage by using masase manipulation which aims to relax the muscles (Rismayanthi et al., 2023). It is known that there are many masase manipulations, with Professor Wara as the developer of manurak therapy taking frirage, tapotement, and efflurage manipulations to treat wrist injuries. The movements in manurak therapy are a little traction, static stretching, and continued with propioceptive neuromuscular facilitation (PNF) which aims to expand the range of motion of the joints (ROM), reduce pain, and reposition the sliding joints to return to the anatomical position of the body.

All muscle surfaces around joints and tendons can benefit from patting, which strengthens the effects of friction and rubbing while easing pain from rubbing manipulation. Joint range of motion (ROM) rises because of decreased discomfort and relaxed muscles (Sadacharan & Seo, 2021). Following manual therapy, motion therapy can help the joint rearrange itself without causing too much discomfort or stiffness, allowing the muscles to relax. Because the patient performs in accordance with their level of discomfort and stiffness, movement therapy actively includes the patient, making it safer (Bae & Park, 2013). Therefore, manurak treatment has the following benefits: it may help patients relax their muscles, reduce discomfort and range of motion rapidly, safely, and comfortably; it is also lightweight and easy for therapists to use.

Physical therapy with massage and stretching manipulations that are given have a positive effect on acute conditions on mental and motor functions, thus making a person more confident and can cause a level of confidence to do something that is not recommended at the time after therapeutic interventions such as rest, because the activities performed can affect recovery (Yeun, 2017). Massage programs provided with an adequate and measurable approach can increase the effectiveness of healing (Ndayisenga et al., 2024).

Although manurak therapy has been used to treat a variety of injuries, no research has examined how well it works to increase range of motion and reduce pain in wrist injuries. For this reason, the purpose of this study is to ascertain how well manurak therapy works to increase range of motion and reduce pain in wrist injuries.

METHODOLOGY

This research is a Pre-Experiment Design study using a one-group pretest-posttest design. In this study the subjects were formed into one group for measurement before (pretest) and after (posttest) given manurak therapy treatment. The measurements taken aim to determine the changes that occur in the subject before and after being given manurak therapy treatment.

The population taken in this examine were sufferers with lawsuits of wrist injuries on the Mafaza massage therapy Workshop Unit which have been screened primarily based on inclusion and exclusion standards. Sampling changed into performed through purposive sampling with the quantity of sufferers within the last 3 months totaling 119 sufferers, which were then

calculated the usage of the Slovin method to decide the pattern size. The consequences of the calculation of the Slovin method above obtained a minimal sample length of 20.6 and in this examine rounded the sample length of 21 human beings.

The facts amassed in this look at are the effects of measurements from sufferers with wrist accidents. information on the measurement of joint movement area (ROM) within the wrist joint turned into accrued thru measurements the usage of geniometry and pain scale measurement statistics was accrued thru measurements using a numerical analogue scale. The information collection procedure in this have a look at is divided into three degrees, particularly pretest (preliminary check), intervention (treatment), and posttest (final check).

The data analysis technique in this study is using paired t-test. Paired t-test is a statistical analysis technique that uses data analysis techniques with prerequisite test steps, namely data normality and homogeneity tests, then proceeds to test the success of the variables. The data analysis technique uses a statistical test application, namely SPSS version 20.

RESULT

Description of Research Data

Pretest data on pain and range of motion measurements

Pretest data was obtained through measurements using pain VAS score android-based applications and goniometers which were carried out before giving manurak therapy treatment. Research subjects were measured according to standard operating procedures as measurement work steps that have been made in order to obtain valid data. The data obtained are as follows:

Table 1. Pretest Data of Pain and Range of Motion of the Wrist

PRETEST					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Pain	21	45	87	65,29	11,41
Flexion	21	65	87	74,38	7,17
Extension	21	69	80	73,76	3,71
Inference	21	21	30	25,05	2,71
Efersi	21	37	51	43,52	4,11

Based on the table over, it can be seen that the pretest information of wrist torment that's demonstrated by the torment scale on the neumerik analogue scale incorporates a least esteem of 45 and a greatest esteem of 87. The wrist ROM pretest information is appeared flexion information with a least esteem of 65 and a greatest esteem of 87, expansion information with a least esteem of 69 and a most extreme esteem of 80, mixture information with a least esteem of 21 and a most extreme esteem of 30, whereas effersion information with a least esteem of 37 and a most extreme esteem of 51. Based on these information, it is known that the normal (cruel) torment pretest information is appeared to be 65.29 whereas the standard deviation is 11.44. The normal pretest ROM flexion information is 74.38 with a standard deviation of 7.17, whereas the normal pretest ROM ektensi information is 73.76 with a standard deviation of 3.71. The cruel pretest information of flexion ROM was 25.05 with a standard deviation of 2.71, whereas the cruel pretest information of flexion ROM was 43.52 with a standard deviation of 4.11.

Posttest data on pain and range of motion measurements

Table 2. Posttest Data of Pain and Range of Motion of the Wrist

POSTTEST					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Pain	21	20	66	42,33	14,53
Flexion	21	73	93	82,29	6,10
Extension	21	74	91	81,33	4,74
Inferense	21	24	34	29,90	2,52
Efersi	21	45	60	50,81	4,26

Based on the table over, it can be seen that the wrist torment posttest information that's demonstrated by the torment scale on the neumerik analogue scale contains a least esteem of 20 and a greatest of 66. The wrist ROM posttest information is appeared flexion information with a least esteem of 73 and a most extreme esteem of 93, expansion information with a least

esteem of 74 and a most extreme esteem of 91, infersion information with a least esteem of 24 and a greatest esteem of 45, whereas effersion information with a least esteem of 45 and a greatest esteem of 34. Based on this information, it is known that the normal (cruel) posttest torment information is appeared to be 42.33 whereas the standard deviation is 14.53. The normal flexion ROM posttest information is 82.29 with a standard deviation of 6.10, whereas the normal ectension ROM posttest information is 81.33 with a standard deviation of 4.74. The normal flexion ROM posttest information is 29.90 with a standard deviation of 2.52, whereas the normal flexion ROM posttest information is 50.81 with a standard deviation of 4.26.

Mean difference data of pretest and posttest

Table 3. Average Data of Pretest and Posttest Differences in Wrist Pain

Pretest and Posttest Data				
	Pretest	Posttest	Difference	Percentage
Pain	65,29	42,33	-22,96	35,16%

Based on the table above, it can be seen that the average difference in pain during the pretest and posttest has decreased by 22.96 with a percentage of 35.16%.

Table 4. Average Data of Pretest and Posttest Differences in Wrist Range of Motion

Pretest and Posttest Data				
	Pretest	Posttest	Difference	Percentage
Flexion	74,38	82,29	-7,91	10,63%
Extension	73,76	81,33	-7,57	10,76%
Inference	25,05	29,90	-4,85	19,36%
Efersi	43,52	50,81	-7,29	16,75%

Based on the table above, it can be seen the difference in the average ROM pretest and posttest. The pretest average value in flexion is 74.38, while the posttest average value is 82.29. The difference in value shows an increase in flexion of 7.91 with a percentage of 10.63%. The pretest mean value in extension was 73.76, while the posttest mean value was 81.33. The difference in these values shows an increase in extension of 7.57 with a percentage of 10.76%. The average pretest score on inference was 25.05, while the average posttest score was 29.90. The difference in these scores shows an increase in inference of 4.85 with a percentage of 19.36%. The pretest average value on the efference was 43.52, while the posttest average value was 50.81. The difference in value shows an increase in efficacy of 7.29 with a percentage of 16.75%. Overall the average difference between pretest and posttest on wrist ROM has increased.

Prerequisite Test Analysis

Normality Test

Table 5. Normality Test Table Pain

	Data	**Sig.**	**Description**
Pain	Pretest	0,923	Normal
	Posttest	0,250	Normal

Based on the table over, it can be seen that the comes about of the torment ordinariness test appear a pretest importance of 0.923 and a posttest of 0.250. The centrality esteem on the pretest and posttest p>0.05 so it can be concluded that the data is normally distributed.

Table 6. Wrist ROM Normality Test Table

	Data	**Sig.**	**Description**
Flexion	Pretest	0,056	Normal
	Posttest	0,103	Normal
Extension	Pretest	0,059	Normal
	Posttest	0,159	Normal
Inference	Pretest	0,324	Normal

	Posttest	0,727	Normal
Efersi	Pretest	0,257	Normal
	Posttest	0,219	Normal

Based on the table over, it can be seen that the comes about of the wrist ROM ordinariness test appear that flexion incorporates a pretest noteworthiness esteem of 0.056 and a posttest of 0.103. The noteworthiness esteem of pretest and posttest flexion is p>0.05, so the data is regularly conveyed. The expansion typicality test contains a pretest importance esteem of 0.059 and a posttest of 0.159. The pretest and posttest extension importance esteem p>0.05, so the information is regularly dispersed. The typicality test of deduction encompasses a pretest importance esteem of 0.324 and a posttest of 0.727. The noteworthiness esteem of pretest and posttest induction is p>0.05, so the information is ordinarily dispersed. The efference typicality test incorporates a pretest noteworthiness esteem of 0.257 and a posttest of 0.219. The centrality esteem of pretest and posttest efference p>0.05, so the data is normally distributed.

Homogeneity test results

Table 7. Results of homogeneity Test for Pain and Range of Motion

Data	Levene Statistic	df1	df2	Sig.
Pain	1,909	1	40	0,175
Flexion	1,297	1	40	0,262
Extension	0,489	1	40	0,488
Inference	0,411	1	40	0,643
Efersi	0,015	1	40	0,904

Based on the table above, it can be seen that the results of the calculation of the homogeneity test of pain and ROM variable data are that each data has a significance of p>0.05. The results of the calculation of pain homogeneity have significance with a value of 0.175, so it is homogeneous. The results of the calculation of the homogeneity test of ROM in flexion have significance with a value of 0.262, in extension 0.488, in infersion 0.643, and in effersion 0.904. The data in the table above can be concluded that all data is homogeneous data.

Hypothesis Test

The hypothesis in this study is that manurak therapy can increase ROM and reduce pain in wrist injuries. Speculation testing is utilized to state the viability or not after information investigation. The theory can be known by the equation H 0: there's no adequacy of manurak treatment in expanding ROM and lessening torment in wrist wounds, H 1: there's adequacy of manurak treatment in expanding ROM and lessening torment in wrist wounds. The distinction test in this think about utilized a Matched t Test. On the off chance that the p esteem is 0.05 at that point H0 is acknowledged and H1 is rejected. The comes about of the t-Test calculation are as takes after:

Table 8. Paired t test Result

Data	Pretest	Posttest	Sig.	Description
Pain	65,29	42,33	0,000	Significant
Flexion	74,38	82,29	0,000	Significant
Extension	73,76	81,33	0,000	Significant
Inference	25,05	29,90	0,000	Significant
Efersi	43,52	50,81	0,000	Significant

Based on the data in the table above, the paired t test results of all data have a significance value of 0.000, it can be interpreted that the significance value or p <0.05 so that the decision H 0 is rejected and H 1 is accepted. The data above can be concluded that there is an effectiveness of manurak therapy to increase ROM and reduce pain in wrist injuries.

DISCUSSION

This study aims to determine the effectiveness of manurak therapy on increasing ROM and decreasing pain in wrist injuries. The test in this think about produced to 21 individuals with male and female sexual orientation with ages 21-50 a long time. This inquire about may be a Quantitative Graphic inquire about with Pre Exsperiment Deisgn plan and with one-group

pretest-posttest plan. In this think about the subjects were shaped into one gather for information collection and estimation some time recently (pretest) and after (posttest) given manurak treatment treatment.

This study shows that subjects who suffer from wrist injuries have various causes of injury, namely caused by accidents, sports, and work. Subjects with accidental causes of injury amounted to 5 people, caused by sports amounted to 9 people, and caused by work amounted to 7 people. Complaints of wrist injuries experienced by patients belong to the category of mild injury, namely grade 1 *sprain*. Symptoms experienced by patients are inflammation or inflammation in the wrist area characterized by *tumor* (swelling), *dolor* (pain), *rubor* (red), *kalor* (heat), and *fungsio leisa* (tissue damage) which causes *range of motion* (ROM) to be disrupted.

The results showed that the provision of manurak therapy which was carried out properly and correctly, was effective in increasing ROM and reducing pain in wrist injuries. Based on the calculation of data analysis on the pain scale, it shows that before being given manurak therapy has an average value of 65.29 and after being given manurak therapy, the average value of the pain scale drops to 42.33 with a calculation of effectiveness of -35.16%.

The calculation of data analysis on flexion ROM before being given manurak therapy obtained an average value of 74.38 ° and after being given manurak therapy the ROM of the wrist increased to 82.29 ° with a count of effectiveness of 10.63%. The results of the data analysis calculation on the extension ROM before being given manurak therapy obtained an average value of 73.76 ° and after being given manurak therapy the extension ROM on the wrist increased to 81.33 ° with a count of effectiveness of 10.26%. The results of data analysis calculations on the infersion ROM before being given manurak therapy obtained an average value of 25.05 ° and after being given manurak therapy the infersion ROM on the wrist increased to 29.90 ° with the results of an effectiveness count of 19.36%. The results of the data analysis calculation on the ROM efersi before being given manurak therapy obtained an average value of 43.52 ° and after being given manurak therapy ROM efersi on the wrist increased to 50.81 ° with the results of the effectiveness count of 16.75%.

The results of the data analysis calculations above show a decrease in pain and an increase in ROM in wrist injuries, so it can be concluded that there is an effectiveness of manurak therapy on reducing pain and increasing ROM in wrist injuries. The framework created shows how manurak therapy works. The impact of a wrist injury is reduced ROM and pain. Manurak therapy is a combination of manual and movement, the manual in this therapy uses *friction, tapotement*, and *efflurage* manipulations. Through the manipulation of mashage, stretching, and pnf, it can trigger endorphins, increase blood flow, and relax the muscles so as to reduce pain and reduced pain can increase ROM in wrist injuries

This study supports previous research, especially the impact of sports massage on knee, lower leg, and hip discomfort as well as dangerous range of motion (Ndayisenga et al., 2024). Even though previous studies paired this with extending, previous research has confirmed the effectiveness of scavenge in joint recovery and pain reduction (Priyonoadi et al., 2020; Utomo & Kushartanti, 2019). The advantages of manual therapy that relies on sensation to effectively convey the weight or control associated with it can be discussed in more detail. Nerve compression causes torment, which subsides after the nerve is sufficiently relaxed. In order to reduce nerve compression, profound weight kneading works better (Kushartanti & Ambardini, 2020). When muscles relax, joints are ready, and repair takes place, ROM conditions through rub advance (Chu et al., 2023; Hasanpour-Dehkordi et al., 2021; Miake-lye et al., 2019). Combining sports knead with scavenge knead, which involves effleurage and grinding (deep tissue), can provide a variety of benefits for pain, range of motion, and the promotion of healing. This study is unique in that it presents a workable approach for restoring bear joints using a combination of rub treatments, including sports and scrounge rub. The advertised knead treatment consists of a program that is well-structured. Anyone seeking this therapy can access it because it includes a broad range of knead choices, treatment recurrence, escalation, and term. Additionally, research suggests that including manipulative rub therapy into a program to restore bear injury might effectively alleviate suffering and restore bear work.

Fortified by inquire about by (Samadian et al., 2024) rub treatment can decrease the escalated of wrist torment and increment hand grasp quality and hand ROM in female karate players. When combined, sports rub with scrounge knead, which includes effleurage and contact (profound tissue), can give assortment and positive impacts on torment, ROM, and incitement of recuperating (Liza et al., 2023). (Arroyo-Morales et al., 2011) massage provides several benefits such as increasing blood flow, reducing muscle tension, increasing nerve stimulation, increasing joint motion space, reducing endema, increasing endorpine hormones and a sense of well-being. Massage therapy helps reduce pain and increase muscle elasticity in chronic injuries because it helps myofascial release and reduce excessive muscle spasm due to injury (Flynn, 2020).

CONCLUSIONS

Based on the discussion of the research results above, it can be concluded that manurak treatment is successful in expanding ROM and decreasing torment. The viability esteem in ROM flexion was 10.63%, expansion 10.26%, infersion 19.36%,

effersion 16.75%, and torment 35.16%. The discoveries affirm the adequacy of manurak treatment in expanding ROM and diminishing torment. This consider gives important experiences into the administration of wrist wounds, highlighting the potential of manurak treatment to make strides the quality of life of people influenced by such wounds. The comes about uncover the down to earth application of manurak treatment as an viable intercession for people with wrist wounds. The noteworthy decrease in torment levels and concomitant increment in ROM illustrate the potential of manurak treatment to create a noteworthy commitment to the restoration and recuperation of people. This ponder emphasizes the require for assist investigate, prescribing a bigger bunch of members for a more comprehensive examination of the benefits of manurak treatment within the treatment of wrist wounds.

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