A Retrospective Study to Explore the Efficacy of Clinic-based Physiotherapy in Patients' Recovery Following Musculoskeletal Trauma

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Abstract

Introduction Every year, a significant number of people are involved in musculoskeletal injuries secondary to trauma. These injuries include fractures, sprains, and strains. Physiotherapy plays a key role in the rehabilitation process during recovery from these injuries. This study explored the efficacy of clinic-based physiotherapy in recovery following musculoskeletal trauma.

Methodology The study comprised 50 participants of different age groups, professions, and gender. They were asked to fill out the questionnaire at the commencement of the treatment and monitored on various parameters during their treatment journey. The study also correlated age, profession, gender, and other ailments on recovery speed.

Results Patients who received regular physiotherapy in the clinic had significantly higher Functional Independence Measure (FIM) scores than those who could not. Factors such as age, and gender resulted in correlated random parameters, thus capturing the intricate yet interactive effects of unobserved heterogeneity, particularly the unobserved behavioral response of patients toward physiotherapy.

Conclusion The patients who received clinic-based physiotherapy had superior 8-week functional outcomes as measured by the FIM motor score, compared with those treated at home. It was observed that patients who rigorously completed the treatment and those who followed the instructions showed better recovery than others.

Keywords
- musculoskeletal injuries
- correlated random parameters
- physiotherapy
- regular treatment
- severity of injury

Introduction

Physical therapy, sometimes referred to as physiotherapy, is a branch of medicine that helps patients maximize their mobility, physical function, and general well-being. Physiotherapists treat a wide range of illnesses, injuries, and disabilities with a variety of methods and strategies. Physiotherapists evaluate the respiratory, cardiovascular, neurological, and musculoskeletal systems of their patients. Their diagnostic abilities and clinical reasoning are usually employed to determine the underlying cause of the issue.[1]

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From newborns to the elderly, health care professionals diagnose and treat patients of all ages. The current function of physiotherapy is to address the diverse health care demands of individuals with illnesses, accidents, or other health-related issues that limit their ability to move and carry out functional tasks in their everyday life as they would like.[2–5] Following heart surgery, many patients experience fear, particularly the elderly. Walking, pushing up from a chair, and getting in and out of bed can all be trained properly to help the patient restore confidence and start the healing process.[6]

Physiotherapy also plays a critical role in helping children with cerebral palsy and helps to achieve maximum functional independence by reducing spasticity and deformity, increasing postural control, and teaching the child how to use assistive equipment. Moreover, physiotherapy teaches the family so that they can support the child in applying what they have learnt in therapy sessions.[7] To relieve pain, physiotherapy employs techniques that include muscular strengthening, shortwave diathermy, interferential treatment, and ultrasonic therapy.

Physiotherapy definitely aids in the restoration of function and movement in those who have been impacted by disease, accident, or disability.[8] In this study, we aimed to explore the efficacy of clinic-based physiotherapy in recovery following musculoskeletal trauma.

Materials and Methods

Fifty individuals from various age groups and professions participated in the study. When the treatment first started, they were required to complete a questionnaire (►**Table 1**), and as they progressed, they were asked to check-in on several different criteria. The participants were divided into two groups, viz those who regularly visited the physiotherapy clinic and those who did not. The average time to recover fully was captured for both groups.

The study also examined the relationship between the patient's age and gender with the functional results and rate of recovery based on Functional Independence Measure (FIM) score. A variety of statistical techniques were employed to evaluate the significance of the suggested parameters. The *t*-test statistics were obtained for both the regular and non-regular groups.

Results

More than 50% of the individuals who participated in this study were between 26 and 45 years of age (►**Fig. 1**). Of all the participants enrolled in the study, 46% were males and 54% were females (►**Fig. 2**). Rate of recovery was found to be better in young age individuals as compared with old age group. No statistically significant difference was found between males and females in terms of functional results and rate of recovery.

Patients who received regular physiotherapy in the clinic had significantly higher FIM motor scores than those who could not complete clinic-based physiotherapy. In addition, muscle strength and joint range of motion was found to be better in the patients who were regular for their physiotherapy sessions.

On applying the *t*-test, it was found that the recovery rate of regular patients was significantly high ($p < 0.05$) as compared with the other group. In addition, regular patients reported with fewer problems later on (►**Table 2**).

Discussion

Physiotherapy has gained recognition as a preferred treatment modality that lowers patients' rates of reliance over time. Physiotherapists are highly skilled medical specialists who assist patients with physical issues brought on by sickness, injury, or aging. In the realm of rehabilitation, they constitute a crucial component of patient treatment.

The goal of rehabilitation is to provide people with tools and support they need to heal or adapt, realize their full potential, and lead as full and active lives as they can. Additionally, after major surgery or in the case of asthma or chronic fatigue syndrome, rehabilitation might aid in the management of stamina. For this reason, it is important to plan the rehab program, the pace of recovery activities, and the short- and long-term goals and end targets for the program.[8,9] A physiotherapist's goal is to enhance a patient's quality of life by employing a range of therapeutic techniques to alleviate discomfort, restore mobility, increase strength, or lessen the impact of any dysfunction brought on by an injury.

The current study demonstrates that the patients who received clinic-based physiotherapy had superior 8-week functional outcomes as measured by the FIM motor score and other objective measures like muscle strength and joint range of motion compared with those treated at home. It was observed that patients who rigorously completed the treatment and adhered to the given instructions had better functional recovery than others. However, other factors such as age also played some role in their recovery. This proves that regularity in the exercise regime as per the instructions given by the treating physiotherapist plays a pivotal role in the rehabilitation of the individuals recovering from muscle injury.

Physical therapy is not only involved in providing the highest quality of care to individuals but also is very active in promoting public health initiatives. The public can benefit from physiotherapy's expanding reach in several ways. The field mostly treats adults, children, and elderly patients with orthopaedic, neurological, cardiopulmonary, and cardiac issues. Sports injuries, fractures, joint diseases, amputations, back and neck pain, arthritis, and postoperative conditions are a few of the orthopaedic problems that are addressed. The setting for orthopaedic physical therapy varies according on the severity of the condition. Joint mobility to reduce stiffness, modalities to treat pain, and therapeutic exercise to increase strength, range of motion, and endurance, etc., is all part of the intervention.[10]

Pertaining to women's health, physical therapy primarily treats problems related to the female reproductive system, delivery, and the postpartum period in women. Urinary

Table 1 Questionnaire for assessing the musculoskeletal function

A. These questions were about how much difficulty you may be having this week with your daily activities because of your injury and the response was registered as follows:
1. Not at all difficult; 2. A little difficult; 3. Moderately difficult; 4. Very difficult; 5. Unable to do
Questions
1. How difficult is it for you to get in or out of a low chair?
2. How difficult is it for you to open medicine bottles or jars?
3. How difficult is it for you to shop for groceries or other things?
4. How difficult is it for you to climb stairs?
5. How difficult is it for you to make a tight fist?
6. How difficult is it for you to get in or out of the bathtub or shower?
7. How difficult is it for you to get comfortable to sleep?
8. How difficult is it for you to bend or kneel down?
9. How difficult is it for you to use buttons, snaps, hooks, or zippers?
10. How difficult is it for you to cut your own fingernails?
11. How difficult is it for you to dress yourself?
12. How difficult is it for you to walk?
13. How difficult is it for you to get moving after you have been sitting or lying down?
14. How difficult is it for you to go out by yourself?
15. How difficult is it for you to drive?
16. How difficult is it for you to clean yourself after going to the bathroom?
17. How difficult is it for you to turn knobs or levers (for example, to open doors or to roll down car windows)?
18. How difficult is it for to write or type?
19. How difficult is it for you to pivot?
20. How difficult is it for you to do your usual physical recreational activities, such as bicycling, jogging, or walking?
21. How difficult is it for you to do your usual leisure activities, such as hobbies, crafts, gardening, card-playing, or going out with friends?
22. How much difficulty are you having with sexual activity?
23. How difficult is it for you to do light housework or yard work, such as dusting, washing dishes, or watering plants?
24. How difficult is it for you to do heavy housework or yard work, such as washing floors, vacuuming, or mowing lawns?
25. How difficult is it for you to do your usual work, such as a paid job, housework, or volunteer activities?
B. These questions ask how often you are experiencing problems this week because of injury and the response was registered as follows:
1. None of the time; 2. A little of the time; 3. Some of the time; 4. Most of the time; 5. All of the time
Questions
1. How often do you walk with a limp?
2. How often do you avoid using your painful limb(s) or back?
3. How often does your leg lock or give way?
4. How often do you have problems with concentrating?
5. How often does doing too much in one way affect what you do the next day?
6. How often do you act irritable toward those around you(for example, snap at people, give sharp answers, or criticize easily)?
7. How often are you tired?
8. How often do you feel disabled?
9. How often do you feel angry or frustrated that you have this injury or arthritis?

(*Continued*)

Table 1 (*Continued*)

C. These questions were about how much you are bothered by problems you are having this week because of your injury and the response was registered as follows:
1. Not at all bothered; 2. A little bothered; 3. Moderately bothered; 4. Very bothered; 5. Extremely bothered
Questions
1. How much are you bothered by problems using your hands, arms, or legs?
2. How much are you bothered by problems with your back?
3. How much are you bothered by problems doing work around your home?
4. How much are you bothered by problems with bathing, dressing, toileting, or other personal care?
5. How much are you bothered by problems with sleep and rest?
6. How much are you bothered by problems with leisure or recreational activities?
7. How much are you bothered by problems with your friends, family, or other important people in your life?
8. How much are you bothered by problems with thinking, concentrating, or remembering?
9. How much are you bothered by problems adjusting or coping with your injury or arthritis?
10. How much are you bothered by problems doing your usual work?
11. How much are you bothered with feeling dependent on others?
12. How much are you bothered with stiffness and pain?

Table 2 *t*-test results for measuring the efficacy of physiotherapy

	Test value = 0						
	t	df	Significance		Mean difference	95% Confidence interval of the difference	
			One-sided *p*	Two-sided *p*		Lower	Upper
VAR00001	11.197	28	<0.001	<0.001	10.172	8.31	12.03
VAR00002	7.413	18	<0.001	<0.001	26.526	19.01	34.04

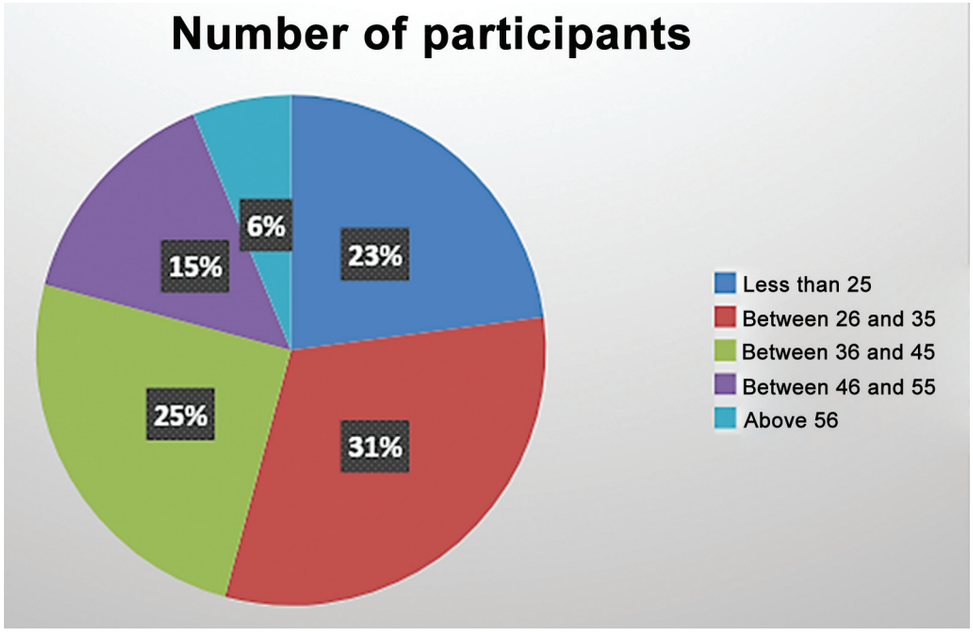

Fig. 1 Demography of participants by age.

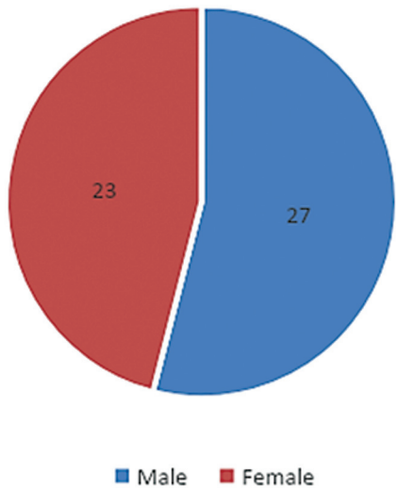

Fig. 2 Demography of participants by gender.

incontinence, pelvic discomfort, the prenatal and postpartum phases, and other illnesses linked to pelvic floor dysfunction are among the conditions where physiotherapy may play a significant role. Numerous studies have shown that physical treatment increases the chances of pregnancy for infertile women. Thus, the main goal of physiotherapy is to determine each person's unique quality of life and capacity for movement in the areas of promotion, prevention, treatment, or intervention, as well as adaptation and health rehabilitation.[11]

In physiotherapy, some standard popular techniques are listed as follows:

- Exercise Prescription: tailored fitness regimens to enhance general physical function, flexibility, and strength.
- Manual Therapy: manual methods used to improve movement and relieve pain, such as massage, joint mobilization, and manipulation.
- Electrotherapy: the use of electrical methods for tissue healing and pain control, such as Electrical Muscle Stimulation, Transcutaneous Electrical Nerve Stimulation, and Ultrasound therapy.
- Heat or Cold Therapy: relieves pain, lessens inflammation, and accelerates healing.
- Functional Training: the practice of particular motions or tasks to improve functional skills.
- Instructions and Counselling: offering advice on ergonomics, posture, and injury avoidance.

Conclusion

The branch of medicine known as physical therapy is in charge of helping people reach their full potential in terms of movement and functional capacity throughout their life. The findings of this article further validate the significance of physical therapy in faster recovery and rehabilitation of case with musculoskeletal trauma.

Conflict of Interest
None declared.

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