

# Current Practice Behaviors and Perceptions of Physiotherapist with Respect to Management of Individual with Osteoporosis

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## ABSTRACT

**Objective:** To determine the behaviors and perceptions of physiotherapist with respect to management of individual with osteoporosis.

**Study Design and Sampling Techniques:** This was a cross sectional study with convenient sampling

**Study Settings & Participants:** This study was conducted among physiotherapists working in University Institute of Physical therapy Clinics, Lahore, and Faisal hospital clinics, Faisalabad and Imran Idrees Institute of Rehabilitation Sciences, Sialkot.

**Data Collection Tools:** A self-structured questionnaire focused on three aspects was used. First section was on physiotherapist concern for different types of treatment modes in osteoporotic patients, second section was on physiotherapist concern for manual therapy and third section was on physiotherapist concern about tissue injuries in response to manual therapy.

**Data Analysis:** The data was analyzed using SPSS version 21.

**Results:** The current study comprised of 100 physiotherapists 57(57 %) were female and 43(43 %) were male and 3% of respondents chosen the treatment modes such as 'other' as compared to others treatment modes. 75% of physiotherapists were using the strengthening exercises for treatment in osteoporotic patients. Forty one percent of physiotherapists were using the manual therapy 58% physiotherapists had showed up the concern with the use of manual therapy techniques as management for osteoporosis. This was more than half of the sample size taken for the study. Fifty one percent of physiotherapists had more concerned about muscle injuries and 71% were concerned about others injuries and fracture such as wrist fracture and hip fracture by using manual therapy.

**Conclusion:** Use of slight progressive strengthening and exercise is better to overcome osteoporotic bone fractures due to manual force application during strength training in subjects with Osteoporosis

**Keywords:** Behavior, Perception, Physiotherapist, Osteoporosis

## INTRODUCTION

The World Health Organization (WHO) defines osteoporosis as a gradual systemic skeletal illness in which mineral density of bones is lowered, structure of bone changed at cellular level causing weakness of bones which increases the risk of fractures and physical disability and the need for long term care.<sup>[1,2]</sup> Osteoporosis that causes fracture characterize a severe and immoderate public health issues leading to functional impairment and increased death risk.<sup>[3]</sup> In women, the prevalence of osteoporosis was reported to be 9% in the United Kingdom, 15% in France and Germany, 38% in Japan and 16% in the United States, whereas in men, the prevalence was 1% in the United Kingdom, 3% in Canada, 4% in Japan and 8% in France. According to previous studies, the incidence of osteoporosis in Non - hispanic white women over 50 years ranges from 7.9% to 22.6 percent.<sup>[4]</sup> The study found that 16.4% of the population of Pakistan had osteoporosis, with 20.3 percent of females and 11.8 percent of males and 45.8% having osteopenia. Fractures are more common in postmenopausal women due to reduced bone mineral density, postmenopausal changes and reduced bone size than males.<sup>[7,5,6]</sup> Fractures are more common with osteoporosis that increase the rate of incidence of disease, death and affect the quality of life.<sup>[8]</sup> Patients who do exercise for treating osteoporosis have a considerably higher quality of life than those who do not. Exercises were done three times a week, with each one being performed 5-8 times results in better outcomes in osteoporotic patients.<sup>[9]</sup> Physical therapy increases the power and strength of musculoskeletal system. Lifestyle, particularly physical activity, movement, and good nutrition during growing age are amongst the crucial osteoporosis prophylactic factors.<sup>[10]</sup> Exercise is alternative critical aspect which can stop osteoporosis. When a person is exposed to physical workout, the body becomes more adaptive, the muscles tone increase and become stronger, and the bones become more dense.<sup>[11]</sup> Rehabilitation process which include

exercises increase the BMD and strength, according to said principle human body undergo adaptation when stress is imposed on it because muscle and bone both are working when performing exercise against weight and under external forces during exercises force generated take out the calcium from blood.<sup>[12]</sup> There are many factors that can cause fracture due to osteoporosis based on bone mineral assessment, including sex, low body mass index, previous fractures and steroid therapy.<sup>[13]</sup> In terms of treatment, past research have shown that more than 57 percent of women at risk do not receive bone-related specific treatment for osteoporosis management.<sup>[14]</sup>

The treatment varies in different regions, specially considerations of densitometry site prior to any fracture of hip or spine and its high risk. The main aspect is that women even after the fracture receiving treatment for osteoporosis after the age of 50 years were low as the record found in Danish register.<sup>[15,16]</sup> The barriers found for the treatment were commonly fear of Gastrointestinal effects and rare cases of osteo-necrosis and femur fractures, the last one is costly treatment.<sup>[17,18]</sup> The risk of osteoporosis is increasing in modern societies due to impaired healing of bone and implications of osteoporosis. Last decades researches has also focused on factors stimulation of bone formation and combine approach to manage fracture healing and osteoporosis but it needs clinical and therapeutic approaches for reversal of bone loss.<sup>[19]</sup>

Physiotherapist uses different treatment strategies to treat osteoporosis patient so, objective of this study was focused to determine the more frequently treatment modes used by physiotherapist in cases of osteoporosis. This study will help the practitioners to manage symptoms of Osteoporosis and further risks of osteoporosis can be prevented and Health quality can be improved with early management of osteoporosis.

**METHODS**

This was a cross sectional study with convenient sampling conducted among physiotherapists working in different physiotherapy institutes from July 2019 to February 2020 Approval was obtained from Ethical Research Committee of University of Lahore, Lahore. Informed consent was also obtained from all study participants. A sample of 100 was calculated by using Rao soft digital software (<http://www.raosoft.com/samplesize.html>). Questionnaire was filled online from physiotherapist working in Faisalabad after taking the informed consent. The physiotherapists currently in practicing Musculoskeletal ,Biomechanics , Sports and orthopedic manual therapy for at least 1 year and have dealt at least 5-10 osteoporosis cases in last year irrespective of age and gender were consecutively enrolled ,but pediatrics , cardiopulmonary and Enological physical therapy practitioners were excluded

A self-structured questionnaire focused on three aspects was used.<sup>[20]</sup> First section was on physiotherapist concern for different types of treatment modes in osteoporotic patients, second section was on physiotherapist concern for manual therapy and third section was on physiotherapist concern about tissue injuries in response to manual therapy. Statistical package for social sciences version 21 was used for the purpose of statistical analysis. Mean and standard deviation were computed for quantitative variable like age and duration of experience whereas frequency and percentages was calculated for qualitative variables like gender, risk of injury, Manual techniques and treatment modes. Significant value of P<0.05

**RESULTS**

There were total 100 physiotherapists included in this study in which 57 % were female and 43 % were male and 3% of respondents chosen the treatment modes such as 'other' as compared to others treatment modes. 3% of subjects fall in others treatment mode were taking the nutritional supplements, preventive measure of falls weight bearing program, endurance training, medication, energy conservation technique support and education. Seventy five percent of physiotherapists were using the strengthening exercises for treatment in osteoporotic patients. Forty one percent of physiotherapists were using the manual therapy only in this population of study. (Figure 1)

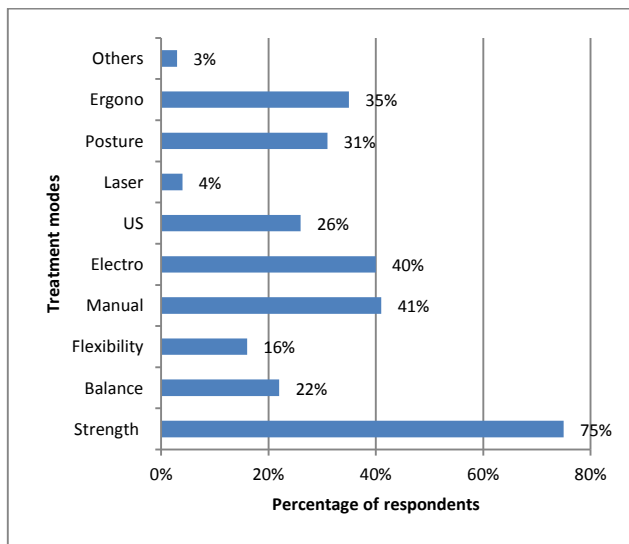


Fig 1: Number of respondents who selected the treatment modes

Strength= Strength exercise; Balance= Balance exercise; Flexibility=Flexibility exercise; Manual=Manual therapy; Electro=Electrotherapy; US=Ultrasound; Laser=Laser therapy;

Posture = Posture reeducation; Ergono= Ergonomic advice; others= others fracture

Fifty eight ( 58% ) percent of physiotherapists had showed up the concern with the use of manual therapy techniques as management for osteoporosis .This was more than half of the sample size taken for the study. (Figure 2)

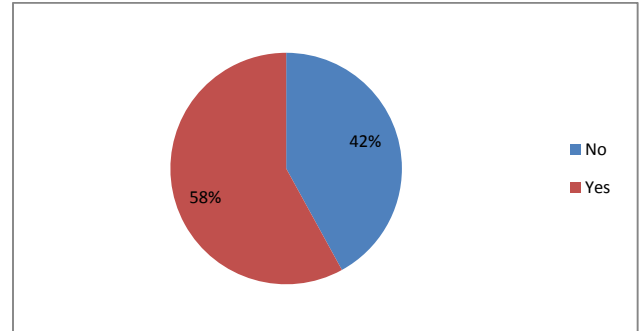


Fig 2: Respondents concerns about using the manual therapy techniques for Osteoporosis

Forty one percent of physiotherapist who was using manual therapy as a treatment mode in question no 1 had also concerned about its use in question 2 (Appendix A).Fifty one percent of physiotherapists had more concerned about muscle injuries and seven percent show up the concerned about others injuries and fracture such as wrist fracture and hip fracture by using manual therapy. Numbers of respondents that had concerned about tissue injuries are shown in fig. (Figure 3)

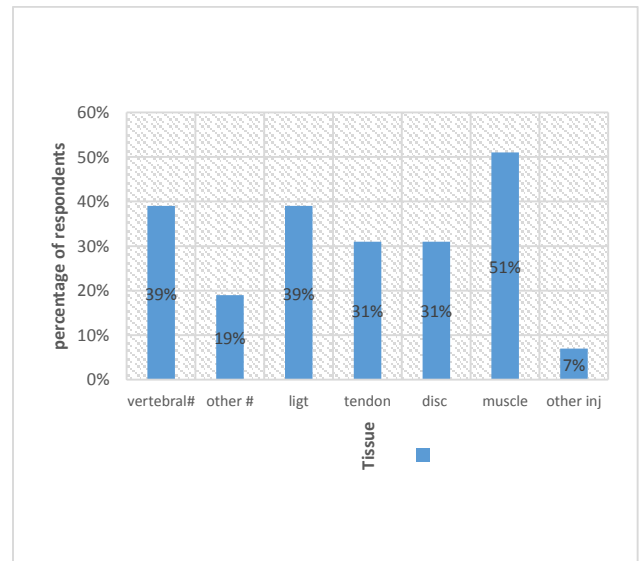


Fig. 3: Percentages of respondents have concern about Risk of injuries in response to manual therapy application

Others inj= others injuries; muscle= muscle injuries; disc= disc injuries; tendon=tendon injuries; Lig=ligament injuries; other#= other fracture; vertebral#=vertebral fracture

**DISCUSSION**

The outcomes of the study showed that physiotherapists were using strengthening exercises and manual therapy to treat the osteoporotic patients. Physiotherapist had more concerned about using the manual therapy and reported more muscular injuries; ligament injuries and vertebral fractures evident in the study. There is insufficient evidence that a brief physiotherapy

intervention, such as manual therapy or home exercise, delivers long-term advantages, short-term benefits are arguably significant.<sup>[21]</sup> This current study also indicated that physiotherapists were more concerned about using both exercises and manual therapy to treat the osteoporosis patients.

Rafiq et al. had depicted that weight bearing exercise is effective in postmenopausal women with osteoporosis. Exercise with medication was showed more improvement.<sup>18</sup> Low level laser therapy with pulsed electromagnetic therapy improve bone mineral density in elderly with primary osteoporosis ( $P < 0.001$ ).<sup>[22]</sup> This current study showed that 4% physiotherapist used the laser therapy for the treatment of osteoporosis patients as well as 40% therapist used electrotherapy to treat this condition. According to Otero et al. basic exercise intervention improved the strength and balance in women with osteoporosis.<sup>[23]</sup> This current study have showed that 75% of therapist used strengthening exercise to treat the osteoporosis patients and this can also beneficial as evident from different available literature. There was no significant association was found between the knowledge of osteoporosis and the bone health. They further concluded that all three components including beliefs, knowledge and bone health are warranted for osteoporosis prevention.<sup>[24]</sup> The current Australian practice guidelines stated that osteoporotic therapy is needed to develop the awareness and GP knowledge should be address to overcome the gaps and implementation of the treatment strategies.<sup>[25]</sup> The supportive uses of bisphosphates alone are not able to give long term prevention against fractures or restoring BMD. but addition of antiresortive is better to protect.<sup>[26]</sup> These of specific training can improve the risks of osteoporosis and its other factors including fall risks.<sup>[27]</sup> The challenges faced by physiotherapist and orthopedics in management of osteoporosis, its medication depends on clinical practices and high quality trials are required to improve its rehabilitation.<sup>[28]</sup> The recommendations for the prevention includes life style modification ,integrated exercise ,calcium intake and Vitamin D intake along with protein intake with all other risk and mainly the reduction of coffee ,tobacco and alcohol.<sup>[29]</sup>

**Ethical Concern:** Participants in research were not being exposed to any kind of harm. The dignity of study participants was to be a primary concern. Prior to the study, the participants' full agreement were obtained. Privacy of study participants was protected and ethical approval was obtained.

## CONCLUSION

Use of slight progressive strengthening and exercise is better to overcome to avoid osteoporotic bone fractures due to manual force application during strength training in subjects with Osteoporosis

**Limitation:** The study was limited to a single city .Further studies with large sample and different centers will help to generalize the results as few studies available.

**Recommendations:** Osteoporosis should be managed without risk of further injury including exercise, modalities and progressive exercise. This area of disease lacking based on physical therapy as well as exercise strategies to decrease effects of osteoporosis .This is the responsibility of health care providers to keep the patients aware promotes exercise.

**Conflict of interest:** There is no conflict of interest.

**Funding sources:** Authors have no funding / financial support from anyone.

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