



COMPARISON OF CALCANEAL TAPING AND SHAM TAPING IN SHORT TERM MANAGEMENT OF PAIN IN PLANTAR FASCIITIS; A RANDOMIZED CLINICAL TRIAL

saba Irfan¹, Muhammad Fiaz²

ABSTRACT

BACKGROUND

Plantar fasciitis is the most prevalent cause of heel and foot discomfort. It is characterized as an overuse condition that causes microtraumas or damage to the plantar fascia. The calcaneal eversion and plantar flexion/adduction of the talus generate the decline in arch height. This may cause plantar fascia to be stressed out. By repositioning calcaneus to neutral position may increase height of medial longitudinal arch leading to decreased stress and micro trauma of plantar fascia. Our technique is unique due to focus on rear foot instead of mid foot.

OBJECTIVE

The objective was to compare effects of calcaneal and sham taping 4 relieve pain in improvement of plantar fasciitis.

METHODS

It was experimental randomized controlled trial, single factor, pretest/post-test study. 50 Patients were included. Subjects were equally allocated in two groups with use of coin toss method of randomization. Group classification was such as Group 1, Calcaneal Taping and Group 2, Sham Taping. Improvement in Pain and functional limitations was measured at pre/post levels by Numeric Pain Rating Scale and Patient Specific Function Scale.

RESULTS

Results showed a significant difference with p value 0.000, mean and standard deviation of patient specific function scale for calcaneal and sham taping group to be 3.240+0.730 and 5.107+0.533, respectively with mean difference of 1.867. Post Treatment measurements of pain showed a mean difference of 2.240 points on Numeric Rating Pain Scale and highly significant difference (p value 0.000 Patients in both calcaneal and sham taping groups showed a significant improvement for pain and specific function (p value 0.000) when analyzed with paired sample t test statistics.

CONCLUSION

The study concluded that calcaneal taping produced significantly better outcomes in improvement of pain and function in patients with plantar fasciitis.

KEYWORDS

Planter Fasciitis, Calcaneal Taping, Sham Taping, Pain, Function

INTRODUCTION

Physical Therapy or Physiotherapy is a profession with high rate of leaving or changing field. Many physiotherapists, especially females, leave or modify profession at an early career stage.(1)

Due to demands to work at multiple dimensions such as managing family, further qualification and throughout clinical course working with own hands and stress collectively would be reason of changing filed. Other major reasons may include professional burnout, occupational hazards, work related musculoskeletal disorders and quality of life. These factors impose a risk to career life thus affecting community due to continuous loss of experienced physical therapy clinicians. Although, work related musculoskeletal disrobes have been reported in wide range of professions in health care sector, yet the physiotherapists are mostly likely to suspect with musculoskeletal disorders due to physical nature of their work, both natation ally and internationally.(2)

Alone impact of work-related musculoskeletal disorders is profound. There is an estimate that about 16% physiotherapists leave or modify their job nature due musculoskeletal disorders. Economic cost of musculoskeletal disorders is also huge in terms of health care intervention cost, sick leaves, and compromised productivity of employee. Although, these impacts are being prevented by pointing risk factors out, safety briefings and awareness through publications and

¹ Manager and physiotherapist, Nephrology department Children hospital Lahore, sabairfan708@gmail.com

² Doctor of physiotherapy, Superior university Lahore, muhammadfiazctn2@gmail.com

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dissemination of research work.(3) The nature of work in physiotherapy is physically demanding which is unavoidable for routine clinical practice and work place tasks. One of such studies have highlighted potential risks factors such as working in same posture for long time, requirements to reach and work sideways of body, carrying equipment or patients, patient transfers, unexpected patients falls and movements, repetition of same task and patient load.(4)

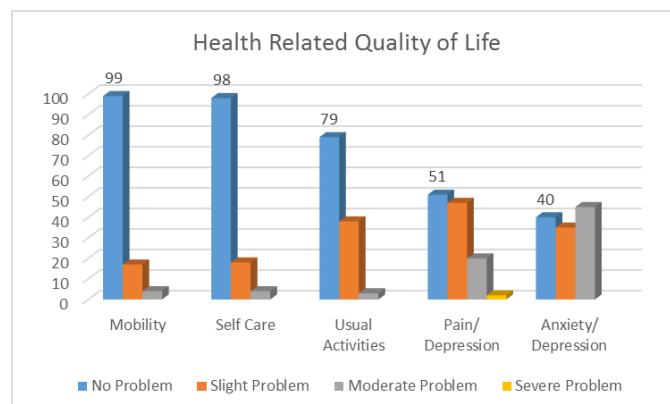
Being experts in managing musculoskeletal disorders, physiotherapists have themselves formulated various guidelines for prevention and intervention of musculoskeletal disorders.(5) The study was two assumptions. The hypothesis was that physical activity of most physiotherapists would be above borderline criteria of physical activity level i.e. 150minutes per 5 times a week, probably, due to their nature of work requiring physical activity, second hypothesis was physiotherapists would show high level of quality of life. (6-10)

Objective of study was to find out association between physical activity and health related quality of life as factors for changing job among physiotherapists.

METHODS

It was a cross section. A sample of 120 physiotherapists were polled in multiple clinical settings in Lahore, including 5 public and 11 private institutions. The hospitals had multidisciplinary orthopedic, neuromuscular, and other patient units. A general outpatient physiotherapy department was available in all three sites. Government hospitals also have hydrotherapy units. The study covered all physiotherapists present. Most physiotherapists practised in ancillary areas such as orthopedic, neuromuscular, and general patient rotations defined by departmental administration. Physiotherapists who did not practise enough in all rotations were omitted from the survey. Before completing out the survey questionnaire, participants were asked to give their informed consent to participate in the study.

The questionnaire was adapted from a comparable open access study. The questionnaire included demographic and physical activity data. EQSD is a health-related quality of life questionnaire. To boost response rates and



reduce response burden, the questionnaire was handed out and collected immediately.

Age, gender, and years in clinical practice since graduation were included. This week's programme was used to reduce recollection bias in self-reported physical activity. The frequency and duration of activities such as walking, strong or heavy activity, and moderate physical work were asked. The physical activity questioned were not merely cardiovascular. The physical activity was split into three categories: vigorous, moderate, and walk. Vigorous exercise was given twice the weight of moderate exercise. If you amass 150 minutes of moderate physical activity 5 times a week, you have met the normal minimal criteria. The measure has strong face and criterion validity, reliability, and acceptance among participants.

The EQSD is a widely used general questionnaire for measuring health-related quality of life. These domains were rated as extreme, moderate, or no difficulty. They were divided into 101 points, with 0 being the worst and 100 being the finest possible health status. In all five categories, 0.00 represents death and 1.00 represents life. In addition, this scale measures health-related quality of life.

The data was gathered on the scene by distributing questionnaires as handouts. There were return envelopes on hand in case somebody wished to post later, but they were never used because everyone reacted on the spot or declined to participate. The frequency, percentages, median and interquartile range, mean, and standard deviation were the primary variables studied. The five EQSD domains were examined and represented as histograms. To demonstrate dispersion range, the physical activity scale was further evaluated as frequency, percentage, interquartile range, multi bar charts, and box plots.



RESULTS

Results showed that 47 (39.2%) were males and 73 (60.8%) were female. Majority 84 (70%) were aged 20-29 years. Health related quality of life scores showed that only the pain/ discomfort and anxiety/depression domains were had marked percentage of moderate to severe problems, while the in rest of domains mobility, self-care and usual activity showed high percentage of no problem. All of physiotherapists were above borderline value of physical activity required to label as normal.

The score of EQ visual analogue scale was mean \pm standard deviation (83.62 ± 7.887). Walking like physical activities reported to be mean and standard deviation as 182.51 ± 11.07 , while those of moderate physical activities and vigorous physical activities were 107.21 ± 17.755 and 56.58 ± 10.297 , respectively.

Table: Demographics

Table 1 Demographic Data of Physiotherapists

| | | Frequency | Percent |
|------------|----------------|-----------|---------|
| Gender | Male | 47 | 39.2 |
| | Female | 73 | 60.8 |
| Age | 20-29 years | 84 | 70.0 |
| | 30 to 39 years | 29 | 24.2 |
| | Above 40 years | 7 | 5.8 |
| Experience | Below 11 years | 114 | 95 |
| | Above 11 years | 6 | 5 |

DISCUSSION

The research showed that majority of physiotherapists was physical active. The work nature of majority physiotherapists were manual work and heavy manual work along with longer hours of walking, moderate and vigorous physical activities. Alone walking duration per week was above minimal requirement i.e., 150 minutes per week. Total minutes of activity per week were on average \pm standard deviation (346.30 ± 35.12), while sessions per week were 6 on average. This all information strongly rejects the hypothesis that physical conditioning can contribute reduction of musculoskeletal disorders so should be ruled out while suggesting as strategy in physiotherapists case.

Majority physiotherapists were younger under 30 years, that makes it obvious that physical activity level be better and all domains of health-related quality of life reported were in comprehensively healthy. However, the anxiety and depression were in comprehensive percentage of slight to moderate anxiety level, the second most was domain of pain and discomfort.

There may be multiple reasons for findings impacted by higher values of anxiety and pain. The physiotherapists in survey were majority young, there may be anxiety due to career challenges, developing skill level and competition that must accomplish for a growth at faster pace. The case with pain and discomfort may be at similar grounds. The younger physiotherapists must manage greater workloads that may lead pain and discomfort, although which was reported to be slight to moderate level. However, the pain and discomfort reported by older physiotherapist would be running very from younger age that was ignore or untreated over the time and have become a challenge in older age.

The senior physiotherapists become resourceful with passage of time and prefer to invest in the areas physical less demanding. Also increasing family requirements make it necessary to look for other financial sources. These all affairs may also be reason of anxiety and depression when comes the case of senior physiotherapists and pain or discomfort may also be somatic symptoms of depressions.

In general, this study clarifies that physical activity-based conditioning is not valid option for preventing musculoskeletal conditions and health related quality of life. This may be useful for other occupations with reduced activity level. Specific intervention of conditioning and non-physical conditioning strategies such as organization support should be considered in physiotherapists' case. (11, 12) Being health care professional who deal with musculoskeletal disorders and other disabilities of crippled nature, they have reported themselves good substantially. (13, 14)

CONCLUSION AND RECOMMENDATIONS

The specific physical activity-based intervention can be better option as compared to general physical activity conditioning which already above recommended criteria of being active. There can be reasons other than that of leaving or modifying physiotherapy field. Future research may consider investigating physical activity and health related quality of life in physiotherapists engaged in non-clinical roles. The senior physiotherapists should have been advised to find out way for light and moderate physical activity to compensate relative drop in their level.

REFERENCES

1. Bernal D, Campos-Serna J, Tobias A, Vargas-Prada S, Benavides FG, Serra C. Work-related psychosocial risk factors and musculoskeletal disorders

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in hospital nurses and nursing aides: a systematic review and meta-analysis. *International journal of nursing studies*. 2015;52(2):635-48.

2. Christensen JR, Kongstad MB, Sjøgaard G, Sjøgaard K. Sickness presenteeism among health care workers and the effect of BMI, cardiorespiratory fitness, and muscle strength. *Journal of occupational and environmental medicine*. 2015;57(12):e146-e52.

3. Davies B, Cramp F, Gauntlett-Gilbert J, Wynick D, McCabe CS. The role of physical activity and psychological coping strategies in the management of painful diabetic neuropathy—A systematic review of the literature. *Physiotherapy*. 2015;101(4):319-26.

4. Ervasti J, Vahtera J, Pentti J, Oksanen T, Ahola K, Kivekäs T, et al. Return to work after depression-related absence by employees with and without other health conditions: a cohort study. *Psychosomatic medicine*. 2015;77(2):126-35.

5. Mesquita R, Gonçalves C, Hayashi D, de SP Costa V, Teixeira DdC, de Freitas E, et al. Smoking status and its relationship with exercise capacity, physical activity in daily life and quality of life in physically independent, elderly individuals. *Physiotherapy*. 2015;101(1):55-61.

6. Ruijter RA, Stegenga B, Schaub RM, Reneman MF, Middel B. Determinants of physical and mental health complaints in dentists: a systematic review. *Community dentistry and oral epidemiology*. 2015;43(1):86-96.

7. Vardar Yağlı N, Şener G, Arıkan H, Sağlam M, İnal İnce D, Savcı S, et al. Do yoga and aerobic exercise training have impact on functional capacity, fatigue, peripheral muscle strength, and quality of life in breast cancer survivors? *Integrative cancer therapies*. 2015;14(2):125-32.

8. Mehrdad R, Shams-Hosseini NS, Aghdaei S, Yousefian M. Prevalence of low back pain in health care workers and comparison with other occupational categories in Iran: A systematic review. *Iranian journal of medical sciences*. 2016;41(6):467.

9. STOLT M, Suhonen R, Virolainen P, Leino-Kilpi H. Lower extremity musculoskeletal disorders in nurses: A narrative literature review. *Scandinavian journal of public health*. 2016;44(1):106-15.

10. Van Eerd D, Munhall C, Irvin E, Rempel D, Brewer S, Van Der Beek A, et al. Effectiveness of workplace interventions in the prevention of upper extremity

musculoskeletal disorders and symptoms: an update of the evidence. *Occup Environ Med*. 2016;73(1):62-70.

11. Dhillon H, Bell M, van der Ploeg H, Turner J, Kabourakis M, Spencer L, et al. Impact of physical activity on fatigue and quality of life in people with advanced lung cancer: a randomized controlled trial. *Annals of Oncology*. 2017;28(8):1889-97.

12. Gyer G, Michael J, Inklebarger J. Occupational hand injuries: a current review of the prevalence and proposed prevention strategies for physical therapists and similar healthcare professionals. *Journal of Integrative Medicine*. 2018.

13. Putz-Anderson V. Cumulative trauma disorders: CRC Press; 2017.

14. Lowe A, Littlewood C, McLean S. Understanding physical activity promotion in physiotherapy practice: A qualitative study. *Musculoskeletal Science and Practice*. 2018.