

ORIGINAL ARTICLE

Treatment preferences of managing low back pain among physical therapists of Khyber Pakhtunkhwa

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ABSTRACT

Background: Low back pain is a prevalent musculoskeletal issue globally. Physiotherapy emerges as a pivotal conventional management approach, offering diverse interventions such as exercise therapy, mobilization, manipulation techniques, and physical agent modalities like TENS, hot packs, ultrasound, and more. This study aimed to investigate treatment preference of physical therapists for low back pain working in tertiary care hospitals of Peshawar and DHQ hospitals of Khyber Pakhtunkhwa.

Methodology: This study aimed to investigate physical therapists' characteristics and intervention patterns for LBP in tertiary care hospitals of Peshawar and DHQ hospitals of Khyber Pakhtunkhwa. A census encompassing all physical therapists working in these settings was conducted, utilizing a self-administered questionnaire adapted from published research.

Result: Predominant exercises employed included postural control (100%), lumbar/lower thoracic stretching (88.0%), local muscle endurance exercises (55.4%), and static/dynamic stabilization (64.1%). Hot and cold applications (92.4%), Transcutaneous Electrical Nerve Stimulation (92.4%), and shortwave diathermy (SWD) (80.4%) were the most utilized modalities for LBP. Significant associations were observed between ultrasound usage, education level, and gender.

Conclusion: This study underscores the prevalent use of both exercise and modalities amongst physical therapists working in DHQs and tertiary care hospitals of the province.

Keywords: low back pain, modalities, physical therapists' preferences

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INTRODUCTION

Low Back Pain (LBP) is the most common musculoskeletal disorder worldwide and one of the five leading causes of the absentees from work.¹ It increases number of healthcare visits, treatments duration and health care budgets in various countries.² It is a condition of interest among various professions, executives, and policy makers in the healthcare systems.³ In the United

States 2.06 million persons experienced low back pain. A total of 1.48 billion populations are at risk and the incidence rate of LBP is reported to be 1.39/1,000 individual per years. Approximately 3.15% patients suffering from LBP visit emergency department of health care center. Black and Caucasian individuals have higher rate of LBP than Asian. Similarly, geriatrics population had been reported at higher risk of

hospital admission due musculoskeletal conditions including LPB.⁴ The Global burden of disease 2012 has highlighted the gigantic global burden of low LBP. LBP is one of the leading causes of disability throughout the world.⁵ In Pakistan, the prevalence of LBP in rural and urban and area has been reported about 31.4% and 39.8%, respectively.⁶

LBP is one of the most expensive medical conditions.⁷ In the USA and Canada one of the biggest reason for compensation has been reported to be LBP.⁸ In the United Kingdom, approximately 9% people who have LBP, visited to physical therapy clinic for pain relief and associated disability management.⁹ According to a study, 70% compensation costs is claimed due to Chronic LBP.¹⁰ Information about LBP and Chronic LBP are inadequate from the developing countries.¹¹ The successful management of LBP included physical therapy intervention, medication, surgery along with cognitive and distinctive treatment methods.¹² In the management of LBP, a multidisciplinary approach is often necessary.¹³

For LBP Physical therapy intervention is the most common and successful type of conservative management.¹⁴ This type of management for LBP consists of distinct types of interventions which included physical agents, exercise therapy, mobilization, manipulation and the most important postural education.⁹ In Physical therapy, Modalities including TENS, Hot pack, US, interferential current and mechanical traction are often used. While techniques including manual therapy (mobilization and manipulation) and exercise therapy are frequently used for the management of LBP.¹⁵ The practices used for the treatment of the LBP varies over all specially the developing countries. Pakistan is still a developing country and considerable number of individuals living in Pakistan is working with some type of physical/manual occupation, that's why most of the Pakistani population is at high risk for developing chronic pain LBP. Physical therapist selection for management of LBP in terms of modalities, mobilization and exercises will open a way evidence-based practice in physical therapy which will help in lessening the disability and impairment due to LBP. No research study has been conducted in Pakistan KP to evaluate the physical therapy practice for LBP management. In addition, a wide range physical therapy services including different pattern of exercises and modalities are used with not a single model that fits all for the management of LBP.

Therefore, this study was designed to assess the physical therapist preferences for the management of the LBP. Physical Therapists are working in tertiary care hospital of and at the district level they are working in district headquarter hospitals of Khyber Pakhtunkhwa.

METHODS

The study designed was a cross-sectional census survey, focusing on physical therapists in tertiary care hospitals in Peshawar and District Headquarter Hospitals of Khyber Pakhtunkhwa. The study duration was six months, utilizing a cross-sectional survey approach using Census sampling technique with a total sample size of 92 participants.

Inclusion criteria comprised willing physical therapists with a graduate degree in physical therapy, actively treating low back pain patients. Exclusion criteria included therapists who left the profession or were engaged in academic and administrative roles.

Upon ethical approval, data collection was conducted from selected physical therapists who met the inclusion criteria. Permission from hospitals and participant consent were obtained. A self-administered questionnaire was distributed in nearby areas, while for distant locations, online platforms (Google Forms, WhatsApp) were utilized. Collected data were coded and entered a Microsoft Excel sheet. SPSS version 22 was employed for analysis, starting with descriptive analysis of socio-demographic data. Frequencies and percentages described the distributions, and the Chi-square test compared categorical variables. Significance was set at P value < 0.05 with a 95% confidence interval.

RESULTS

Demographic Information

Table 1 summarizes the demographic details of physical therapists included in this study. Majority of the included physical therapists were male (53.3%), and most therapists treated both in and outpatient cases (46.7%). About the patients, 60.9% of the patients were seeking physical therapy services for chronic stage of LBP. A significant number of therapists held a master's degree (79.3%), with musculoskeletal specialization being the most common (41.3%). Most respondents worked in district headquarter hospitals (55.4%). Patients' mean age was 20-40 years (69.6%) and were often referred by

orthopedic surgeons (38.0%) or neuro-physicians.
Treatment Exercises Recommended by Physical Therapist

Physical therapists commonly prescribed exercises for postural control (100%), stretching of lumbar/lower thoracic (88.0%), local muscle endurance (55.4%), and static/dynamic stabilization (64.1%). Cardiovascular training (80.4%), stretching other body parts (73.9%), motor control exercises (70.7%), and strengthening other body parts (67.4%) were used less frequently (table-II). Non-parametric chi-square tests indicated no significant associations ($p > 0.05$) between the commonly used exercise techniques and gender, education, or hospital setting (tertiary care or DHQ hospital).

Modalities Recommended by Physical Therapist for LBP Modalities Recommended By Physical Therapist For LBP

Physical therapists commonly utilized modalities such as hot and cold applications (92.4%), TENS (92.4%), and SWD (80.4%) for LBP. However, some modalities like shock wave sonic therapy (100.0%), dry needling (95.7%), EMG Biofeedback (88.0%), and muscle stimulation (58.7%) were rarely or never used due to lack of experience or unavailability in hospitals (table-III, figure-I). Non-parametric chi-square tests

indicated no significant associations ($p > 0.05$) between commonly used modalities and gender, education, or hospital setting. However, a significant association was found between education, gender, and the use of U/S ($p < 0.05$).

Modalities and their Therapeutic Effect on the body

Most respondents favored modalities like TENS (93.5%), Shortwave Diathermy (57.6%), heat or thermal applications (68.5%), and US (59.8%) for pain relief. However, EMG biofeedback (63.0%), laser therapy (68.5%), shock wave (76.1%), traditional acupuncture (65.2%), and dry needling (68.5%) were categorized as 'Do not use/outside scope of practice' due to unavailability, lack of experience, or being outside the scope of practice in the hospital setting (table-IV). Additionally, 54.3% of respondents utilized muscle stimulation for muscle retraining or strengthening.

Manual Therapies and Traction for LBP

Most physical therapists commonly utilized manual therapies, with mobilization (92.4%), massage/soft tissue work (71.7%), and manual traction (64.1%) being the most frequently applied. Manipulation (56%) was occasionally used by physical therapists. The Mackenzie technique (37.0%) was the most commonly employed method for managing LBP.

Table I: Demographic of physical therapist

		Count	Column N %
gender of physical therapist	Male	49	53.3%
	Female	43	46.7%
Please specify area of practice	Outpatient	36	39.1%
	Inpatient	13	14.1%
	Both	43	46.7%
Lumbar pain chronicity (in what stage do patients mostly come to you?)	Acute / Sub acute (less than 12 weeks)	36	39.1%
	Chronic (more than 12 weeks)	56	60.9%
highest degree obtained	Bachelor	19	20.7%
	MSPT	73	79.3%
	MSK.PT	38	41.3%
post graduate degree specialty	NPT	26	28.3%
	Sport .PT	1	1.1%
	cardiopulmonary PT	4	4.3%
	Other	23	25.0%
Please indicate the type of facility in which you practice:	tertiary care hospital	41	44.6%
	district headquarter hospital	51	55.4%
Ratio of patient male to female	Male	46	50.0%
	Female	46	50.0%
Age groups of patients	Less than 20 years	0	0.0%
	20-40 years	64	69.6%
	Above 40 years	28	30.4%
Source of referrals	General physician	1	1.1%
	Orthopedic Surgeon	35	38.0%
	Neuro physician	17	18.5%
	Other	9	9.8%
	all of these	30	32.6%

Table II: Exercises recommended by physical therapist for LBP

		N	%	Gender	Education	Hospital setting
Stretching lumbar or lower thoracic	Commonly	75	81.5%	0.407	0.51	0.51
	Occasionally	17	18.5%			
	Never	0	0.0%			
Stretching other body parts	commonly	17	18.5%	0.77	0.72	0.972
	Occasionally	68	73.9%			
	Never	7	7.6%			
Strengthening lumbar or lower thoracic	Commonly	81	88.0%	0.68	0.63	0.13
	Occasionally	8	8.7%			
	Never	3	3.3%			
Strengthening other body parts	Commonly	25	27.2%	0.80	0.23	0.91
	Occasionally	62	67.4%			
	Never	5	5.4%			
Local muscle endurance exercises for lumbar or lower thoracic	Commonly	51	55.4%	0.72	0.69	0.90
	Occasionally	41	44.6%			
	Never	0	0.0%			
Postural Control (correct spinal posture)	Commonly	92	100.0%	N/C	N/C	N/C
	Occasionally	0	0.0%			
	Never	0	0.0%			
Exercises related to motor control (proprioceptive, tactical, visual, pattern synchronization)	Commonly	23	25.0%	0.60	0.39	0.33
	Occasionally	65	70.7%			
	Never	4	4.3%			
Static or dynamic stabilization	Commonly	59	64.1%	0.28	0.08	0.43
	Occasionally	31	33.7%			
	Never	2	2.2%			
Cardiovascular training fitness	Commonly	7	7.6%	0.71	1.06	0.83
	Occasionally	74	80.4%			
	Never	11	12.0%			

Table III: Modalities recommended by Physical Therapist for LBP

		Count	%	Gender	Education	Setting P-value
TENS	Yes	85	92.4%	0.56	0.73	0.09
	No	7	7.6%			
EMG Biofeedback	Yes	11	12.0%	0.06	0.90	0.47
	No	81	88.0%			
Muscle Stimulation (induced contraction)	Yes	38	41.3%	0.74	0.41	0.61
	No	54	58.7%			
Short-Wave Diathermy (SWD)	Yes	74	80.4%	0.45	0.06	0.92
	No	18	19.6%			
Heat or cold application	Yes	85	92.4%	0.83	0.36	0.91
	No	7	7.6%			
Ultrasound	Yes	76	82.6%	0.013	0.033	0.91
	No	16	17.4%			
Shock wave	Yes	0	0.0%	N/C	N/C	N/C
	No	92	100.0%			
Traditional acupuncture	Yes	1	1.1%	0.34	0.87	0.21
	No	91	98.9%			
Dry needling	Yes	4	4.3%	0.05	0.58	0.82
	No	88	95.7%			

Table IV: Modalities and their therapeutic effect on the body

		Count	Column N %
TENS	Pain Relief	86	93.5%
	Retrain/strengthening Muscle	2	2.2%
	To enhance tissue Healing	1	1.1%
	To alter tissue extensibility prior to manual therapy	2	2.2%
	Do not use/outside scope of practice	1	1.1%
EMG biofeedback	Pain Relief	3	3.3%
	Retrain/strengthening Muscle	23	25.0%
	To enhance tissue Healing	3	3.3%
	To alter tissue extensibility prior to manual therapy	5	5.4%
Diathermy	Do not use/outside scope of practice	58	63.0%
	Pain Relief	53	57.6%
	Retrain/strengthening Muscle	3	3.3%
	To enhance tissue Healing	10	10.9%
	To alter tissue extensibility prior to manual therapy	15	16.3%
Muscle stimulation	Do not use/outside scope of practice	11	12.0%
	Pain Relief	18	19.6%
	Retrain/strengthening Muscle	50	54.3%
	To enhance tissue Healing	3	3.3%
	To alter tissue extensibility prior to manual therapy	8	8.7%
Heat or cold application	Do not use/outside scope of practice	13	14.1%
	Pain Relief	63	68.5%
	Retrain/strengthening Muscle	2	2.2%
	To enhance tissue Healing	8	8.7%
	To alter tissue extensibility prior to manual therapy	16	17.4%
Laser therapy	Do not use/outside scope of practice	3	3.3%
	Pain Relief	7	7.6%
	Retrain/strengthening Muscle	5	5.4%
	To enhance tissue Healing	11	12.0%
	To alter tissue extensibility prior to manual therapy	6	6.5%
Ultrasound	Do not use/outside scope of practice	63	68.5%
	Pain Relief	55	59.8%
	Retrain/strengthening Muscle	9	9.8%
	To enhance tissue Healing	18	19.6%
	To alter tissue extensibility prior to manual therapy	7	7.6%
Shock wave	Do not use/outside scope of practice	3	3.3%
	Pain Relief	12	13.0%
	Retrain/strengthening Muscle	4	4.3%
	To enhance tissue Healing	1	1.1%
	To alter tissue extensibility prior to manual therapy	5	5.4%
Traditional acupuncture	Do not use/outside scope of practice	70	76.1%
	Pain Relief	17	18.5%
	Retrain/strengthening Muscle	10	10.9%
	To enhance tissue Healing	2	2.2%
	To alter tissue extensibility prior to manual therapy	3	3.3%
Dry needling	Do not use/outside scope of practice	60	65.2%
	Pain Relief	21	22.8%
	Retrain/strengthening Muscle	7	7.6%
	To enhance tissue Healing	0	0.0%
	To alter tissue extensibility prior to manual therapy	1	1.1%
	Do not use/outside scope of practice	63	68.5%

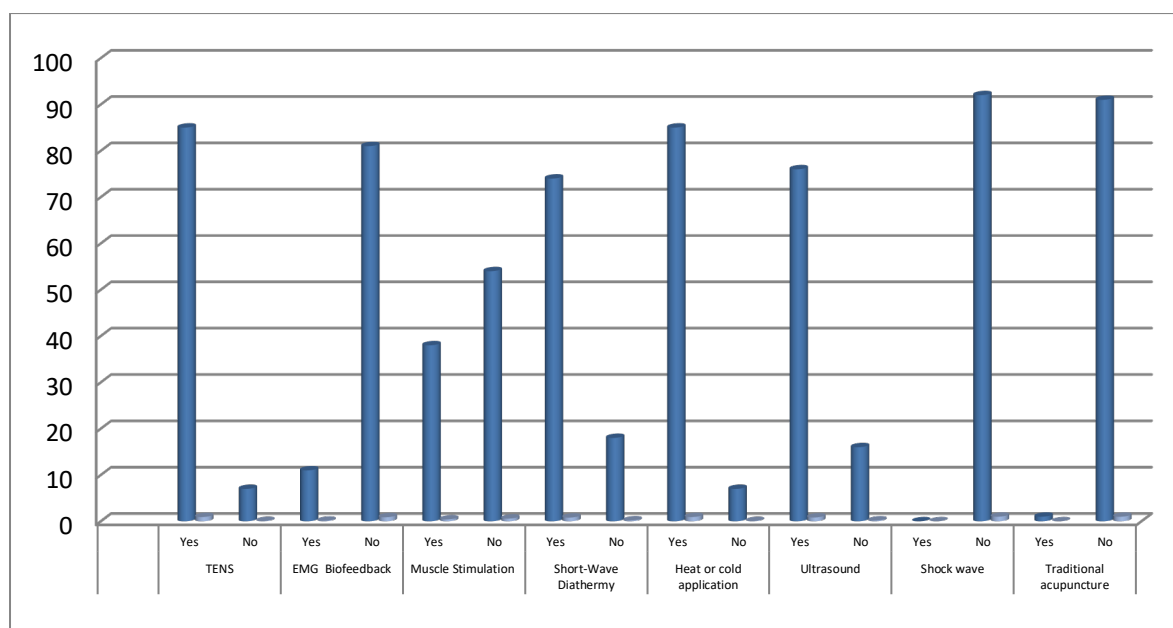


Figure I: Modalities recommended by Physical Therapist

DISCUSSION

Low back pain (LBP) is a prevalent global issue, impacting 80% of individuals during their lifetime.⁶ Physical therapy has been a common approach for managing LBP, employing diverse interventions like exercises, advice, Maitland mobilization, McKenzie mobilization, abdominal exercises, short-wave diathermy, interferential therapy, and ultrasound.¹⁶

In the Canadian context, therapists favor exercise, patient education, and electrotherapeutic and thermal modalities for acute lumbar LBP.¹⁷ Conversely, in our study, work-related interventions and communication with employers were infrequently advised.

Ghanaian physical therapists emphasize therapeutic exercise, ergonomics, massage, and manual therapy, with exercise therapy being highly preferred. In contrast, our study found a higher percentage (47%) of therapists advising work-related interventions. Additionally, modalities like TENS, SWD, hot packs, and interferential therapy were key components in managing LBP in both studies. However, the use of manual therapy procedures differed, with our study reporting a higher percentage (64.1%) using manual traction.¹⁸

For hypothetical LBP cases (Chronic, Acute recurrent, and Acute-non-Recurrent), the common treatment preference in our study included education on proper body mechanics, ice modality, and TENS usage, aligning with the reported effectiveness of the McKenzie approach. Thai therapists used hot packs, ultrasound, mechanical traction, and stretching, with Maitland

mobilization being the common mobilization procedure, in contrast to our findings.¹⁹

Indian therapists employed electrotherapy, exercise therapy, and manual therapy, while our study revealed the prevalent use of hot and cold applications (92.4%) and TENS (92.4%). Advice on ergonomic and postural modifications was consistent, with a focus on workplace posture and home exercises. SWD and IFC were preferred therapeutic modalities, aligning with our finding.²⁰

Sankarganesh's study, involving three hypothetical LBP cases, highlighted preferences for patient education, strengthening (17%), IFT (10%), and traction techniques (8%). In cases of chronic LBP, therapists favored educating patients on body mechanics (17%), strengthening (15%), stretching (12%), and IFT (10%). For acute recurrent LBP, emphasis was on educating body mechanics (17%) and strengthening (17%), along with IFT (11%) and stretching (11%). In cases of acute LBP and sciatica, traction and educating biomechanics were prioritized (14%), surpassing the importance of strengthening and IFT (11%), or bed rest. Our study aligns with these findings, as TENS was commonly used, and manual therapy procedures were not extensively reported in Chennai. IFT was consistently used in all three hypothetical cases.²¹

In Karachi, therapists predominantly used Maitland mobilization, while in KP, the Mackenzie technique was more common. Interestingly, electrotherapy was not commonly used in the Karachi study, unlike our findings.²²

Conclusion

Physical therapists in tertiary care hospitals in Peshawar and District Head Quarter Hospitals (DHQ) of Khyber Pakhtunkhwa (KP) commonly employ various exercises for managing low back pain (LBP), such as stretching for lumbar or lower thoracic regions, exercises for postural control, strengthening for lumbar or lower thoracic areas, local muscle endurance exercises for lumbar or lower thoracic regions, and static or dynamic stabilization. Additionally, frequently utilized modalities for LBP include hot and cold applications, transcutaneous electrical nerve stimulation (TENS), and short-wave diathermy (SWD).

Limitations

In current study only physical therapists working in tertiary care hospital of Peshawar and DHQ of KP were investigated, so the results cannot be generalized to the entire physical therapist of the country.

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