

PREVALENCE OF WORK-RELATED THUMB PAIN AMONG PHYSICAL THERAPISTS OF HAZARA DIVISION A CROSS-SECTIONAL STUDY

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Abstract

Aim: This study aimed to determine the prevalence of work-related thumb pain among physical therapists practicing manual therapy in the Hazara Division of Pakistan.

Methods: A descriptive cross-sectional survey was conducted over six months. Eighty physical therapists (≥ 25 years old, ≥ 1 year experience) working in government and private sectors were recruited through convenience sampling. Data were collected using a self-administered questionnaire covering demographics, frequency, and severity of thumb pain, as well as work-related factors. Data were analyzed using SPSS version 22, applying descriptive statistics, cross-tabulations, and frequencies.

Results: The mean age of participants was 29.3 ± 4.2 years. Of the 80 participants, 68 (85%) reported experiencing thumb pain during manual therapy, whereas 12 (15%) did not. Thumb pain was more prevalent among males (53.8%) compared to females (46.2%). Pain episodes varied: 35% experienced pain once, 35% reported 2–4 episodes, and 22.5% experienced 5–7 episodes. Most therapists (58.8%) worked 4–6 days per week, and 38.8% treated 4–6 patients daily. Manual therapy combined with modalities was the most common treatment approach (92.5%). On a 0–10 scale, 43.8% of participants rated pain between 4–6, indicating moderate severity.

Conclusion: A high prevalence of work-related thumb pain was identified among physical therapists in the Hazara Division, especially in younger therapists. Male therapists reported slightly higher prevalence rates. The findings highlight the occupational risks associated with manual therapy and underscore the need for ergonomic interventions, workload modifications, and preventive strategies.

INTRODUCTION

Musculoskeletal disorders are among the most common occupational health concerns worldwide, particularly in professions requiring repetitive and forceful physical activity. Physical therapists are at heightened risk due to the frequent use of manual therapy techniques such as mobilization and manipulation. These interventions, involving oscillatory movements or high-velocity thrusts, are integral to physiotherapy practice but can exert considerable biomechanical stress on the hands and thumbs (1,2).

The World Health Organization (WHO) defines work-related musculoskeletal disorders (WMSDs) as a wide range of inflammatory and degenerative conditions exacerbated by occupational exposures (3). For physiotherapists, the hand and wrist—particularly the thumb—are among the most vulnerable anatomical sites, second only to the lower back (4). Research has consistently shown that repetitive thumb loading during mobilization and manipulation increases the risk of pain, instability, and degenerative joint changes (5,6).

Several studies have reported that the prevalence of thumb pain among manual therapists ranges from 60% to 83% worldwide (7–9). The carpometacarpal (CMC) and metacarpophalangeal (MCP) joints of the thumb are especially prone to hypermobility and osteoarthritic changes when subjected to repetitive stress (10,11). Contributing factors include joint laxity, technique, duration of manual therapy, and high patient loads (12).

Despite recognition of this occupational hazard internationally, limited research has been conducted in Pakistan, particularly in the Hazara Division. This study investigates the prevalence of work-related thumb pain among physical therapists practicing manual therapy in Hazara. By identifying demographic and occupational risk factors, the research aims to contribute to prevention strategies and raise awareness among practitioners.

METHODOLOGY

Descriptive cross-sectional survey. This study was conducted in the Hazara division. The sample size was 80, calculated through an online calculator;

Raosoftware calculator. To achieve the suitable figure and type of individuals to participate in the research is called sampling. For accumulating samples we use the technique of convenience sampling. It is a sort of non-probability sampling in which descriptive data are composed of those which are easy to achieve and reach.

Inclusion Criteria:

- Physiotherapists having age above 25 years.
- Male and female both genders.
- Physical therapists serve in the government and private sectors.
- Physical therapists that hold at least one year of working experience.

Exclusion Criteria:

- Any disorders are other than musculoskeletal injuries in the thumb.
- Any surgery on the wrist.
- A physiotherapist who doesn't give consent.

When the research proposal was approved by the research committee, the data was obtained from the mentioned participants who meet the inclusion criteria. Before taking data, consent was taken from the corresponding physical therapist at the Hazara division. Permission was taken from the participants who were willing to participate in the research. For data collection, we used only simple English language. A self-administered questionnaire was used for data collection. A hard copy of the questionnaire was spread among the participants. The questionnaire had two divisions: Demographic characteristics, Thumb Pain Survey Data were analyzed through SPSS version 22 after collection. Positive responses from the selected population were 100%. We used SPSS version 22 for data analyses. We get a 100 % positive response from the allocated population.

Results

Demographics

The mean age of participants was 29.3 years (SD = 4.2, range 25–46). Most participants (75%) were

between 25–30 years, while 12.5% were aged 31–35, 7.5% were 36–40, and 5% were older than 41 years as shown in table 1.

Gender distribution showed 53.8% (n=43) males and 46.2% (n=37) females. Regarding BMI,

43.8% had normal weight, 28.8% were overweight, 20% underweight, and 7.5% obese as shown in table 2 and table 3.

Table: 1 Age of The participants

Age Group	Frequency	Percentage (%)
25 to 30	60	75
31 to 35	10	12.5
36 to 40	6	7.5
Above 41	4	5

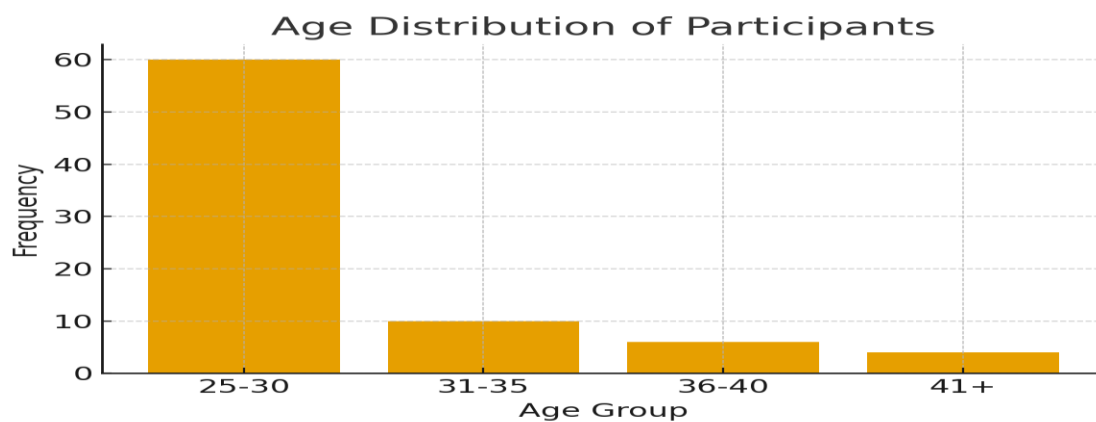


Fig 1: Age of the participants

Table:2 Gender Base Prevalence of Thumb pain

Gender	Total	Thumb pain	Percentage
Male	43	40	93%
Female	37	28	75.7%

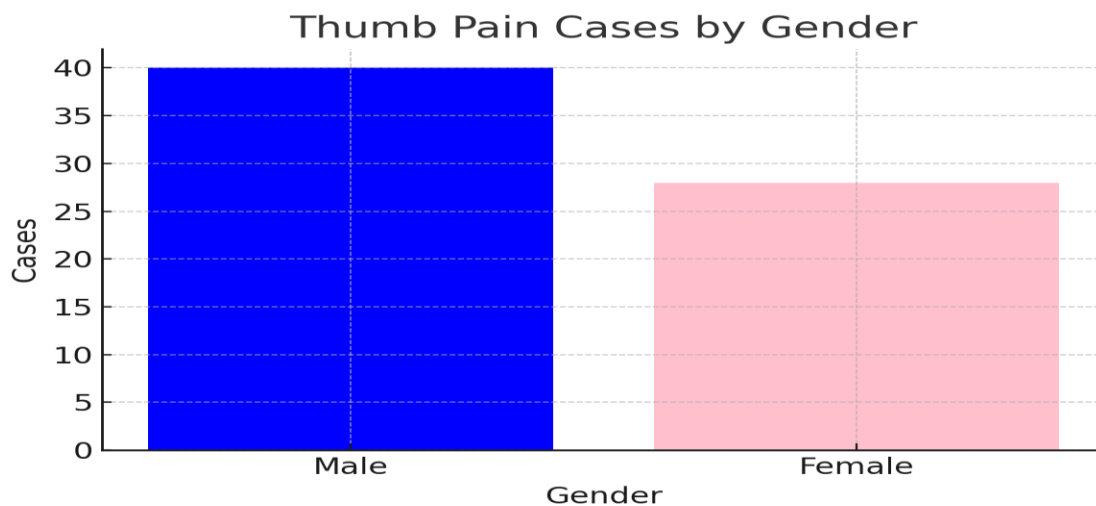


Fig 2: Gender Base Prevalence of Thumb pain

Table 3: BMI of Physical Therapist

BMI	Frequency	Percentage
Underweight	16	20
Normal	35	43.8
Overweight	23	28.8
Obese	6	7.5

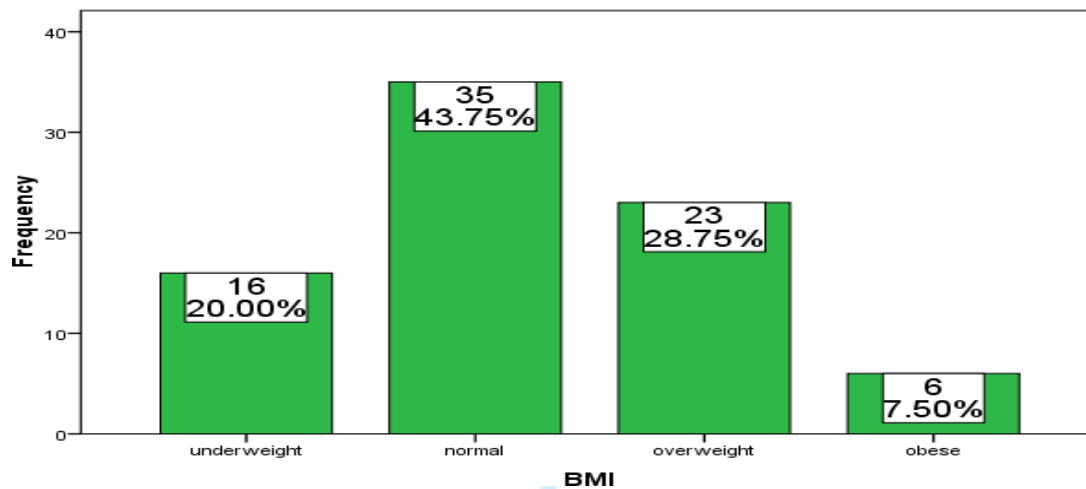


Figure 3: body mass index

Table 4: Age of subjects' cross tabulation

Age	Do you have ever experienced thumb pain during assessment/treatment or applying manual therapy technique?		Total
	yes	No	
25 to 30	50	10	60
31 to 35	8	2	10
36 to 40	6	0	6
41 above	4	0	4
Total	68	12	80

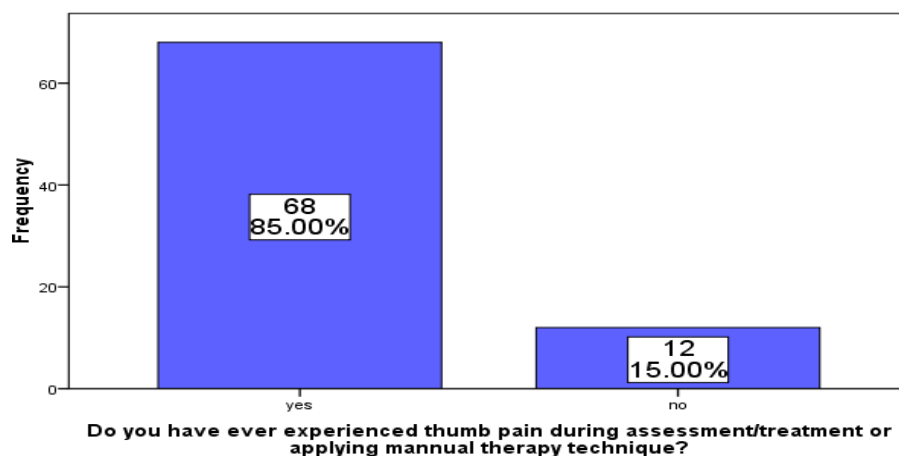


Figure 4: Thumb pain during assessment/treatment or applying manual therapy technique

Table 5: Gender of cross tabulation

Do you have ever experienced thumb pain during assessment/treatment or applying manual therapy technique?				
Cross tabulation				Total
Gender		Yes	No	
	Male	40	3	43
	Female	28	9	37
Total		68	12	80

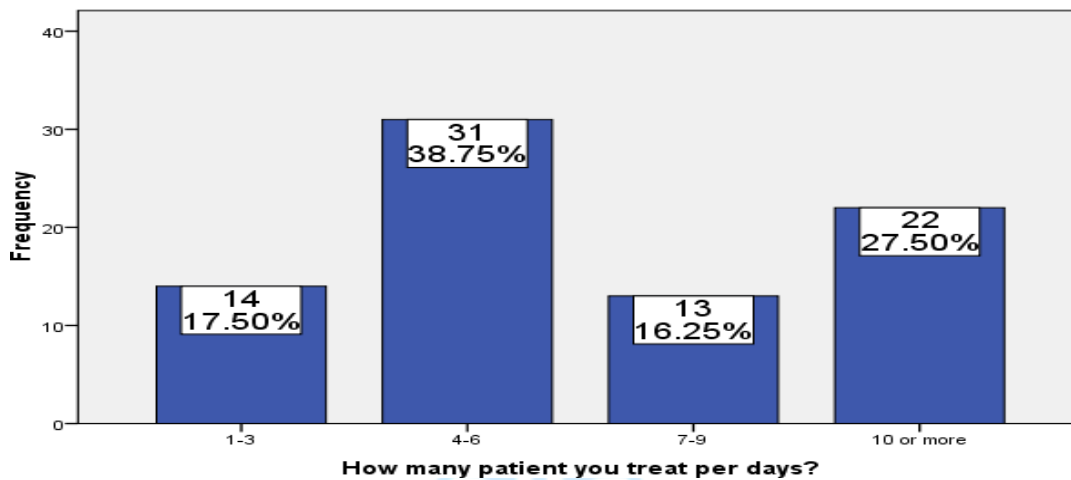
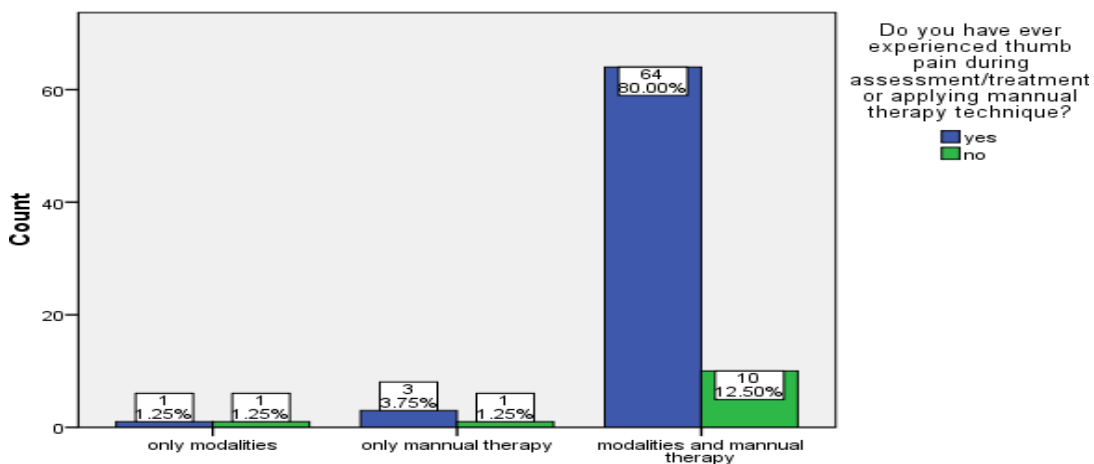


Figure 5: patient treats per days

Table 6: thumb pain during assessment/treatment or applying manual therapy technique

Do you have ever experienced thumb pain during assessment/treatment or applying manual therapy technique?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	68	85.0	85.0	85.0
	No	12	15.0	15.0	100.0
	Total	80	100.0	100.0	



Which mode treatment do you apply on patient?

Figure 6: Mode of treatment apply on patients for cross tabulation

Table 7: Frequency and episodes of Thumb pain

Episodes	Frequency	Percentage (%)
Once	28	35
2 to 4	28	35
5 to 7	18	22.5
>7 times	6	7.5

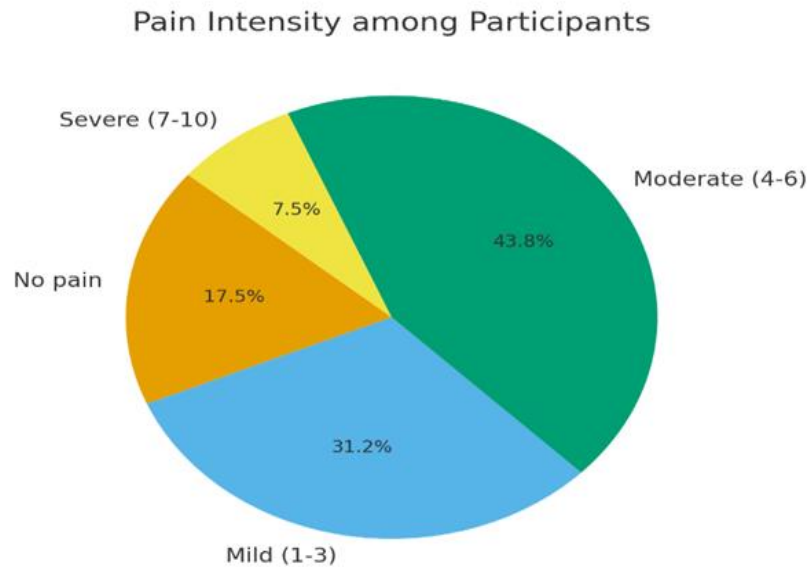


Fig7: Pain intensity among participant

Table 8: patient treats per patient

How much time you take to treat per patients?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-20min	15	18.8	18.8	18.8
	20 to30min	34	42.5	42.5	61.2
	30to40min	19	23.8	23.8	85.0
	more than 40	12	15.0	15.0	100.0
	Total	80	100.0	100.0	

Table9: Pain intensity VAS

Pain intensity	Frequency	Percentage ((%))
No pain	14	17.5
Mild (1-3)	25	31.2
Moderate (4-6)	35	43.8
Severe (7-10)	6	7.5

DISCUSSIONS

This study found that 85% of physical therapists in the Hazara Division experienced work-related thumb pain, a prevalence consistent with international findings ranging from 65–83% (7–9). These results highlight the considerable occupational burden faced by physiotherapists engaged in manual therapy.

Age and Gender Patterns

The majority of affected therapists were in the 25–30 age range, suggesting that work-related thumb pain develops early in professional careers. Similar findings were reported in Australian and Pakistani studies, where early exposure to manual therapy techniques correlated with increased risk of pain (13,14). Gender analysis showed a slightly higher prevalence among males (93%) compared to females (75.7%). This contrasts with studies in Australia, where females reported higher prevalence due to higher representation in outpatient musculoskeletal settings (15). In Hazara, the higher male prevalence may reflect differences in workload intensity or cultural practice patterns.

Risk Factors and Mechanisms

The etiology of thumb pain in physical therapists is multifactorial. Repeated stress on the CMC and MCP joints leads to ligamentous laxity and eventual degenerative changes (10,11). Workload factors in this study—including number of patients treated and time spent per session—mirror known risk factors identified elsewhere (16).

Comparisons with Other Studies

A Lahore-based study reported a prevalence of 63% attributed mainly to unilateral PA pressure during spinal mobilization (14). Similarly, research from Peshawar found an 83% prevalence, aligning closely with this study's findings (17). International studies in Australia and South Africa reported lifetime prevalence ranging from 55–65% (15,18), slightly lower than the Hazara findings, possibly reflecting differences in ergonomics training and clinical practice styles.

CONCLUSION

Work-related thumb pain is highly prevalent among physical therapists in the Hazara Division, with 85% reporting pain linked to manual therapy. Younger therapists and males were disproportionately affected. Manual therapy combined with modalities was the most common practice pattern and carried the highest risk. Preventive ergonomic strategies and workload modifications are urgently needed to safeguard therapist health and sustain professional practice.

6.1 LIMITATIONS:

- Because of limited time we failed to collect enough data which was essential for making our study effective and accurate. Therefore we only collected the data from a sample of 80 subjects which can affect the validity of our study.
- Limited studies were available about this topic so did not have enough studies for making their comparison with other study.
- Limited resources.
- Lack of interest

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