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Original Article

Effectiveness of Tendon-Gliding Exercises Versus Mobilization with Movement on De Quervain's Tenosynovitis in Typists: A Randomized Controlled Trial

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ABSTRACT\

Background: De Quervain's tenosynovitis causes radial-sided wrist pain and impaired hand function and may be aggravated by repetitive occupational hand activity. Evidence directly comparing mobilization with movement and tendon-gliding exercises in typists is limited. Objective: To compare the effects of mobilization with movement and tendon-gliding exercises on pain intensity and hand-related impairment in typists with De Quervain's tenosynovitis. Methods: This two-group clinical trial included 126 participants recruited from three hospitals in Lahore, Pakistan. Participants were allocated to mobilization with movement or tendon-gliding exercises, with 63 participants in each group. Both groups received hot-pack application and stretching, followed by their assigned intervention three times weekly for four weeks. Pain and hand function were assessed using the Numeric Pain Rating Scale and Michigan Hand Questionnaire at baseline, Week 2, and Week 4. Mixed repeated-measures analysis and between-group comparisons of change scores were performed. Results: At Week 4, NPRS scores decreased from 7.33 ± 1.15 to 2.24 ± 0.89 in the mobilization-with-movement group and from 7.02 ± 1.33 to 5.70 ± 1.10 in the tendon-gliding group. The between-group difference in pain reduction was 3.78 points (95% CI, 3.47–4.09; $p < 0.001$). The corresponding between-group difference in MHQ improvement was 10.22 points (95% CI, 8.70–11.74; $p < 0.001$). Significant time-by-treatment interactions were observed for NPRS and MHQ scores. Conclusion: Both interventions were associated with short-term improvement, but mobilization with movement produced greater reductions in pain and hand-related impairment over four weeks. These findings require confirmation using concealed allocation, blinded assessment, verified outcome scoring, and longer follow-up. Keywords: De Quervain Tenosynovitis; Mobilization With Movement; Tendon-Gliding Exercises; Hand Function; Occupational Overuse; Randomized Controlled Trial.

INTRODUCTION

De Quervain's tenosynovitis is a painful disorder of the first dorsal extensor compartment of the wrist involving the abductor pollicis longus and extensor pollicis brevis tendons. It commonly presents with pain and tenderness over the radial styloid, discomfort during thumb movement or wrist ulnar deviation, and difficulty performing gripping, pinching, lifting, and repetitive hand activities. Although the condition has traditionally been described as inflammatory tenosynovitis, histopathological findings frequently demonstrate thickening of the extensor retinaculum, fibrocartilaginous metaplasia, myxoid degeneration, mucopolysaccharide deposition, and restricted tendon excursion, suggesting that degenerative and mechanical changes may contribute substantially to its development (1,2).

Repetitive thumb and wrist activity is considered an important clinical and occupational factor associated with De Quervain's tenosynovitis. Symptoms have been reported among caregivers, manual workers, smartphone users, computer users, and individuals whose occupations require prolonged or repetitive hand activity (3–5). Typists may be particularly susceptible because sustained keyboard use exposes the wrist and thumb musculotendinous structures to repeated low-load movement, static positioning, and cumulative mechanical stress. Persistent pain and impaired hand function can interfere with typing performance, productivity, and routine activities, emphasizing the importance of effective conservative rehabilitation.

Initial management is generally conservative and may include activity modification, ergonomic education, splinting, therapeutic exercise, physical modalities, manual therapy, or corticosteroid injection, depending on symptom severity and clinical presentation (1,6,7). Physiotherapy aims to reduce pain, restore pain-free wrist and thumb movement, improve tendon excursion, and facilitate a return to functional hand use. However, the relative effectiveness of individual physiotherapy interventions remains uncertain because available studies have commonly used small samples, case-based designs, combined treatment programmes, or comparisons with non-exercise interventions (6–9).

Tendon-gliding exercises are used to promote controlled excursion of the affected tendons, maintain movement within the first dorsal compartment, support synovial fluid distribution, and reduce mechanical restriction. These exercises can be performed independently and may therefore be suitable for supervised rehabilitation and home-based management. Nevertheless, tendon-gliding exercises primarily address tendon mobility and may not fully address painful restrictions associated with the wrist and thumb joint complex.

Mobilization with movement is a manual-therapy approach in which a clinician applies a sustained accessory glide while the patient simultaneously performs an active movement that would otherwise be painful or restricted. The technique is intended to facilitate pain-free movement and improve joint mechanics, although its analgesic and mechanical mechanisms remain theoretical and may involve altered sensory input, improved movement tolerance, and changes in local joint and soft-tissue loading (8–10). Previous clinical reports and comparative studies have indicated that mobilization with movement may reduce pain and improve function in patients with De Quervain's tenosynovitis and other peripheral musculoskeletal conditions (8–11). A recent randomized trial comparing mobilization with movement with oscillatory mobilization found improvement with both approaches, with greater short-term gains in pain, disability, and range of motion after mobilization with movement (11).

Despite increasing use of both approaches, direct comparative evidence regarding mobilization with movement and tendon-gliding exercises in occupational typists remains limited. Establishing their relative short-term effects may assist clinicians in selecting a practical conservative intervention for patients whose symptoms are associated with repetitive keyboard activity. Therefore, this study aimed to compare the effects of mobilization with movement and tendon-gliding exercises on pain intensity and hand function in typists with De Quervain's tenosynovitis over a four-week intervention period. It was hypothesized that the changes in Numeric Pain Rating Scale and Michigan Hand Questionnaire scores would differ between the two treatment groups.

MATERIALS AND METHODS

This randomized, two-group clinical trial was conducted over three months following approval of the study synopsis by the Ethics Review Committee of Al-Razi Institute, Lahore, Pakistan. Participants were recruited from Bajwa Hospital, Social Security Hospital Shahdara, and Government Teaching Hospital Shahdara in Lahore, Pakistan. The study was conducted in accordance with accepted ethical principles for research involving human participants. Before enrolment, eligible individuals received information about the study procedures, confidentiality of their information, voluntary participation, and their right to withdraw. Written informed consent was obtained in English or Urdu.

A total of 126 male and female typists aged 20–50 years were enrolled. Participants were eligible when they had radial-sided thumb or wrist pain and stiffness lasting for at least two weeks and a positive Finkelstein test consistent with De Quervain's tenosynovitis. Individuals were excluded when they had carpal tunnel syndrome, rheumatoid arthritis or other relevant arthritic changes, a wrist fracture or deformity, radiating pain or neurological signs, pregnancy, or previous surgery for De Quervain's tenosynovitis.

Participants were recruited through non-probability sampling and allocated in a 1:1 ratio to the mobilization-with-movement group or the tendon-gliding group. Each enrolled participant was assigned an alphanumeric study identifier; identifiers ending in an odd number were allocated to the mobilization-with-movement group, whereas identifiers ending in an even number were allocated to the tendon-gliding group. This procedure produced two groups of 63 participants each. Because the interventions involved visibly different therapist-assisted and exercise-based procedures, participant blinding was not feasible.

Before treatment, a clinical history was obtained to identify the onset, duration, distribution, and aggravating factors of symptoms and to screen for competing musculoskeletal, systemic, or neurological conditions. The wrist and thumb were observed for swelling, altered posture, and alignment around the radial styloid. Palpation was performed to identify localized pain and tenderness, and active and passive movements of the wrist and thumb were examined. Pain intensity and hand function were recorded before commencement of the intervention.

Both groups received a common conventional physiotherapy programme consisting of a hot pack and stretching for 10 minutes. Participants allocated to the mobilization-with-movement group additionally received therapist-administered mobilization with movement directed at the symptomatic wrist and thumb complex. A sustained accessory mobilization was applied while the participant actively performed the relevant wrist or thumb movement within a pain-free range. Participants allocated to the tendon-gliding group performed controlled tendon-gliding exercises intended to facilitate excursion of the abductor pollicis longus and extensor pollicis brevis tendons. Both assigned interventions were administered in three sets per session, three sessions per week, for four consecutive weeks.

Pain intensity was assessed using the Numeric Pain Rating Scale. Participants rated their pain on an 11-point numerical scale ranging from 0, representing no pain, to 10, representing the worst imaginable pain. Hand-related function was evaluated using the Michigan Hand Questionnaire, which assesses domains relevant to hand function, activities of daily living, work performance, pain, appearance, and satisfaction. The questionnaire was scored consistently at each assessment, with the analysed total score interpreted according to the scoring direction used in the study dataset. Outcome assessments were completed at baseline, at the end of Week 2, and at the end of Week 4.

Data were coded and analysed using IBM SPSS Statistics version 26.0. Categorical variables were summarized as frequencies and percentages, whereas continuous variables were summarized using means and standard deviations. Distributional assumptions for continuous outcomes were assessed using the Shapiro–Wilk test. Baseline categorical characteristics, including sex and affected thumb side, were compared between groups using chi-square or exact tests, as appropriate. Baseline continuous outcome scores were compared using independent-samples t-tests.

Within-group changes between baseline and Week 4 were examined using paired-samples t-tests. Longitudinal changes in Numeric Pain Rating Scale and Michigan Hand Questionnaire scores across baseline, Week 2, and Week 4 were evaluated using mixed repeated-measures analysis of variance, with time as the within-participant factor and treatment group as the between-participant factor. The time-by-treatment interaction was used to determine whether the pattern of change differed between the two interventions.

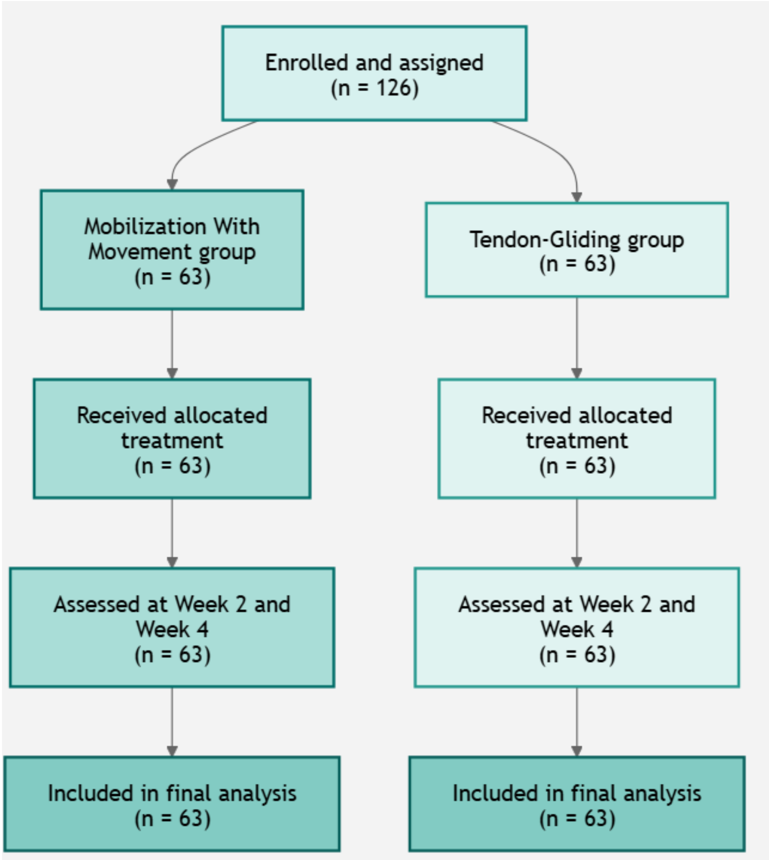

Figure 1 CONSORT Flowchart

Mauchly's test was used to assess sphericity, and Greenhouse–Geisser-adjusted degrees of freedom were applied when the sphericity assumption was violated. Change scores at Weeks 2 and 4 were compared between groups using independent-samples t-tests, and standardized between-group differences were expressed using Cohen's d. All tests were two-sided, and statistical significance was established at $p < 0.05$.

RESULTS

A total of 126 participants were included in the analysis, with 63 participants allocated to the mobilization-with-movement group and 63 to the tendon-gliding group. All reported outcome analyses were based on these group denominators. Overall, 70 participants were female and 56 were male, while the right thumb was affected in 78 participants and the left thumb in 48 participants.

Table 1. Baseline Characteristics of Participants by Treatment Group

Characteristic	Mobilization With Movement (n = 63)	Tendon Gliding (n = 63)	Test statistic	p-value
Age category, mean ± SD	2.29 ± 0.73	1.90 ± 0.86	t = 2.691	0.008
Male sex, n (%)	32 (50.8)	24 (38.1)	χ^2 = 2.057	0.151
Female sex, n (%)	31 (49.2)	39 (61.9)		
Right thumb affected, n (%)	36 (57.1)	42 (66.7)	χ^2 = 1.212	0.271
Left thumb affected, n (%)	27 (42.9)	21 (33.3)		
Baseline NPRS score, mean ± SD	7.33 ± 1.15	7.02 ± 1.33	t = 1.436	0.154
Baseline MHQ score, mean ± SD	38.08 ± 5.96	37.21 ± 6.39	t = 0.793	0.429

Age was recorded as an ordinal category coded 1–3 rather than as age in years. NPRS, Numeric Pain Rating Scale; MHQ, Michigan Hand Questionnaire; SD, standard deviation.

The groups had comparable baseline NPRS and MHQ scores. Baseline NPRS scores were 7.33 ± 1.15 in the mobilization-with-movement group and 7.02 ± 1.33 in the tendon-gliding group ($p = 0.154$). Corresponding MHQ scores were 38.08 ± 5.96 and 37.21 ± 6.39, respectively ($p = 0.429$). Sex and affected-thumb distributions also did not differ significantly between the groups. However, the ordinal age-category distribution differed significantly, with a higher mean category in the mobilization-with-movement group than in the tendon-gliding group (2.29 ± 0.73 versus 1.90 ± 0.86; $p = 0.008$).

Table 2. Baseline and Week 4 Pain and Hand-Function Outcomes

Outcome	Treatment group	Baseline, mean ± SD	Week 4, mean ± SD	Mean change ± SD	95% CI	Paired t-value	p-value
NPRS	Mobilization with movement	7.33 ± 1.15	2.24 ± 0.89	5.10 ± 1.16	4.81 to 5.39	34.864	<0.001
NPRS	Tendon gliding	7.02 ± 1.33	5.70 ± 1.10	1.32 ± 0.50	1.20 to 1.44	20.813	<0.001
MHQ	Mobilization with movement	38.08 ± 5.96	18.89 ± 1.79	19.19 ± 5.30	17.87 to 20.51	28.722	<0.001
MHQ	Tendon gliding	37.21 ± 6.39	28.24 ± 4.47	8.97 ± 3.02	8.22 to 9.72	23.603	<0.001

Changes were calculated as baseline minus Week 4; positive values therefore indicate reduced pain or reduced hand-related impairment. CI, confidence interval; NPRS, Numeric Pain Rating Scale; MHQ, Michigan Hand Questionnaire; SD, standard deviation. Degrees of freedom were 62 for each paired comparison.

Both interventions were associated with statistically significant improvements from baseline to Week 4. In the mobilization-with-movement group, the mean NPRS score decreased from 7.33 ± 1.15 to 2.24 ± 0.89, corresponding to a mean reduction of 5.10 points (95% CI, 4.81–5.39; $p < 0.001$). The tendon-gliding group showed a smaller reduction from 7.02 ± 1.33 to 5.70 ± 1.10, with a mean change of 1.32 points (95% CI, 1.20–1.44; $p < 0.001$).

Hand-function scores also improved in both groups. The MHQ score decreased by 19.19 points in the mobilization-with-movement group (95% CI, 17.87–20.51; $p < 0.001$), compared with a reduction of 8.97 points in the tendon-gliding group (95% CI, 8.22–9.72; $p < 0.001$). The direction of these changes was interpreted according to the study dataset, in which a reduction in the analysed MHQ score represented lower hand-related impairment.

Table 3. Between-Group Comparison of Changes in Pain and Hand Function

Outcome and assessment	Mobilization With Movement, mean change ± SD	Tendon Gliding, mean change ± SD	Group Difference	95% CI	t-value	p-value	Cohen's d
NPRS, Week 2	2.43 ± 1.04	0.75 ± 0.51	1.68	1.39 to 1.97	11.517	<0.001	2.05
NPRS, Week 4	5.10 ± 1.16	1.32 ± 0.50	3.78	3.47 to 4.09	23.720	<0.001	4.23
MHQ, Week 2	7.57 ± 2.70	4.75 ± 1.92	2.82	1.99 to 3.65	6.765	<0.001	1.20
MHQ, Week 4	19.19 ± 5.30	8.97 ± 3.02	10.22	8.70 to 11.74	13.299	<0.001	2.37

Positive change scores indicate pain reduction or reduced hand-related impairment. Confidence intervals were calculated from the reported group means, standard deviations, and $n = 63$ per group. Cohen's d was calculated using the pooled standard deviation of the change scores.

Between-group comparisons consistently favoured mobilization with movement. At Week 2, the mean reduction in NPRS was 2.43 ± 1.04 points in the mobilization-with-movement group and 0.75 ± 0.51 points in the tendon-gliding group. The between-group difference was 1.68 points (95% CI, 1.39–1.97; $p < 0.001$), with a large standardized effect size (Cohen's $d = 2.05$).

By Week 4, the mean NPRS reduction was 5.10 ± 1.16 points following mobilization with movement and 1.32 ± 0.50 points following tendon gliding. The between-group difference was 3.78 points (95% CI, 3.47–4.09; $p < 0.001$; Cohen's $d = 4.23$).

A similar pattern was observed for hand function. At Week 2, the reduction in the analysed MHQ score was 7.57 ± 2.70 points in the mobilization-with-movement group and 4.75 ± 1.92 points in the tendon-gliding group, producing a between-group difference of 2.82 points (95% CI, 1.99–3.65; $p < 0.001$; Cohen's $d = 1.20$). At Week 4, the corresponding changes were 19.19 ± 5.30 and 8.97 ± 3.02 points, respectively. The between-group difference was 10.22 points (95% CI, 8.70–11.74; $p < 0.001$; Cohen's $d = 2.37$).

Table 4. Mixed Repeated-Measures Analysis of Variance for NPRS and MHQ Scores

Outcome	Effect	Corrected numerator df	F-value	p-value	Greenhouse–Geisser ε
NPRS	Time	1.895	972.053	<0.001	0.948
NPRS	Time × treatment	1.895	338.681	<0.001	0.948
NPRS	Treatment group	1.000	64.707	<0.001	—
MHQ	Time	1.255	1188.653	<0.001	0.627
MHQ	Time × treatment	1.255	166.221	<0.001	0.627
MHQ	Treatment group	1.000	18.317	<0.001	—

Greenhouse–Geisser-corrected results are reported for within-participant effects because Mauchly's test indicated violation of sphericity for NPRS ($W = 0.945$, $p = 0.030$) and MHQ ($W = 0.406$, $p < 0.001$).

Mixed repeated-measures analysis showed significant changes in both outcomes across baseline, Week 2, and Week 4. For NPRS, the main effect of time was significant ($F = 972.053$, Greenhouse–Geisser-corrected $p < 0.001$). More importantly, the time-by-treatment interaction was significant ($F = 338.681$, $p < 0.001$), indicating that the pattern and magnitude of pain reduction differed between the interventions. The treatment-group effect was also significant ($F = 64.707$, $p < 0.001$).

For MHQ, the main effect of time was significant ($F = 1188.653$, Greenhouse–Geisser-corrected $p < 0.001$), showing an overall change in hand-related impairment during the intervention period. The significant time-by-treatment interaction ($F = 166.221$, $p < 0.001$) indicated that functional recovery followed different trajectories in the two groups. The between-participant treatment effect was also significant ($F = 18.317$, $p < 0.001$).

Overall, both interventions were associated with reductions in pain and hand-related impairment over four weeks. However, the mobilization-with-movement group demonstrated larger improvements at both follow-up assessments. These differences were statistically significant and were accompanied by large standardized effect estimates. The magnitude of these effect sizes should nevertheless be interpreted alongside the significant baseline age-category imbalance and verified against the original participant-level dataset.

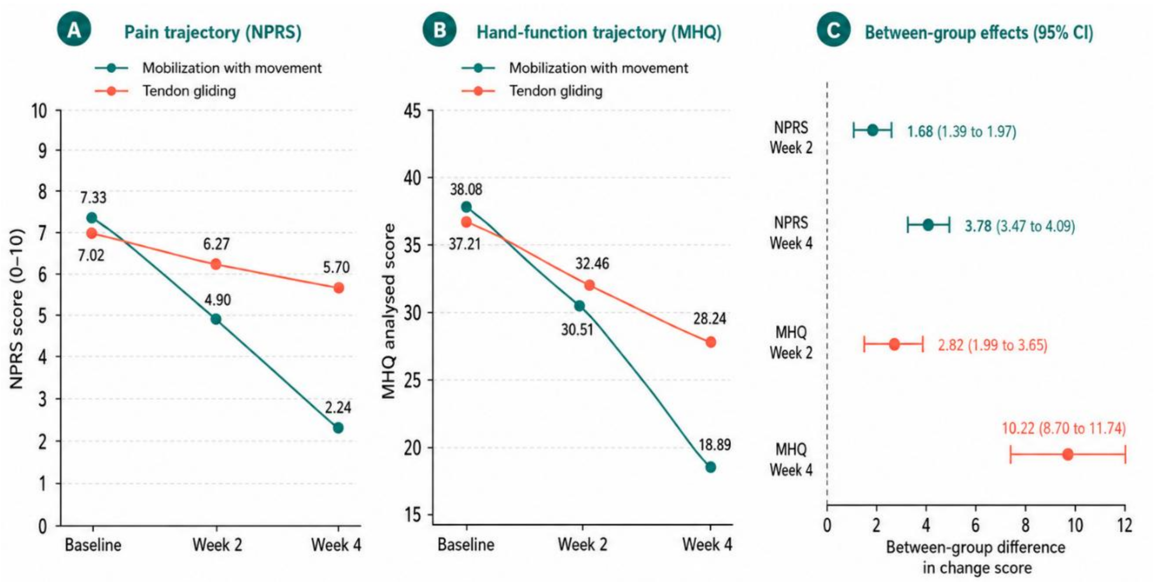

Figure1. Changes in Numeric Pain Rating Scale (NPRS) and Michigan Hand Questionnaire (MHQ) scores among participants receiving mobilization with movement or tendon-gliding exercises. Panel A shows pain scores at baseline, Week 2, and Week 4. Panel B shows changes in the analysed MHQ score, for which lower scores represented less hand-related impairment in the study dataset. Panel C presents between-group differences in change scores with 95% confidence intervals. Positive differences favour mobilization with movement. Pain and hand-related impairment decreased in both groups, but the trajectories diverged progressively in favour of mobilization with movement. At Week 4, the between-group difference in NPRS improvement was 3.78 points (95% CI, 3.47–4.09), while the difference in MHQ improvement was 10.22 points (95% CI, 8.70–11.74). The corresponding Week 2 differences were 1.68 points for NPRS and 2.82 points for MHQ.

DISCUSSION

This randomized two-group clinical trial compared mobilization with movement and tendon-gliding exercises in typists with De Quervain's tenosynovitis. Both interventions were associated with statistically significant reductions in pain and hand-related impairment over four weeks. However, participants receiving mobilization with movement demonstrated greater improvements at Weeks 2 and 4. The significant time-by-treatment interactions for both Numeric Pain Rating Scale and Michigan Hand Questionnaire scores indicated that the pattern of recovery differed between the two interventions, with a steeper short-term improvement in the mobilization-with-movement group.

The reduction in pain observed after mobilization with movement was consistent with earlier clinical literature suggesting that therapist-applied mobilization performed during active movement may improve pain-free motion in peripheral musculoskeletal disorders (8–12). Backstrom reported improvement following the use of mobilization with movement as part of the conservative management of a patient with complicated De Quervain's tenosynovitis, while Young et al. observed favourable outcomes after an orthopaedic manual-therapy approach emphasizing first carpometacarpal manipulation (8,9). A recent randomized trial also found that mobilization with movement produced greater short-term improvements in pain, disability, and range of motion than oscillatory mobilization among patients with De Quervain's tenosynovitis (11). Although the present findings were broadly consistent with those reports, differences in treatment protocols, populations, comparator interventions, and study quality limit direct comparison.

Several mechanisms may explain the larger short-term pain reduction observed after mobilization with movement. The technique combines an accessory joint glide with active physiological movement and is intended to facilitate movement within a symptom-free or minimally symptomatic range. Its effects may involve altered afferent input, improved movement tolerance, modulation of pain-related guarding, and changes in local joint and soft-tissue loading (10,12,13). These mechanisms remain theoretical, and the present study did not include physiological, biomechanical, or imaging measurements capable of establishing how the intervention produced its effects. The findings should therefore be interpreted as evidence of comparative clinical improvement rather than confirmation of a specific positional-fault or neurophysiological mechanism.

Tendon-gliding exercises were also associated with significant improvement, although the magnitude of change was smaller. Controlled tendon movement may support excursion of the abductor pollicis longus and extensor pollicis brevis tendons, maintain mobility within the first dorsal compartment, and reduce protective stiffness associated with painful hand use (1,2,6). Conservative rehabilitation approaches incorporating exercise, activity modification, splinting, manual therapy, and physical modalities have previously been associated with symptomatic and functional improvement in De Quervain's tenosynovitis (6,7,14–16). The present results support the use of tendon-gliding exercises as an active conservative intervention, particularly where self-management and home-based exercise are important. However, the findings do not establish that tendon gliding alone is sufficient for all patients or that it is inferior to every alternative conservative treatment.

The between-group difference was already apparent at Week 2 and increased by Week 4. The mean between-group difference in NPRS improvement was 1.68 points at Week 2 and 3.78 points at Week 4. For the analysed MHQ score, the corresponding differences were 2.82 and 10.22 points. These findings indicate that the benefit associated with mobilization with movement was not confined to an immediate post-treatment response but continued across the four-week intervention period. Nevertheless, the clinical importance of these differences should be interpreted cautiously because no prespecified minimal clinically important difference was reported for this population, and the MHQ scoring direction used in the dataset requires confirmation against the original questionnaire-scoring procedure.

The large standardized effect estimates warrant particular caution. Cohen's d values ranged from 1.20 to 4.23, which are substantially larger than those commonly observed in rehabilitation trials. Such estimates may reflect a genuinely large contrast between the interventions, but they may also be influenced by restricted variability, the use of change-score standard deviations, subjective outcome measurement, absence of assessor masking, treatment-expectation effects, or characteristics of the underlying dataset. Independent verification using the original participant-level data is therefore important before the magnitude of benefit is considered definitive.

The significant baseline difference in age category should also be considered when interpreting the results. Although baseline NPRS and MHQ scores were similar between groups, the mobilization-with-movement group had a higher mean ordinal age category. Because age was recorded as a coded category rather than in years, the extent and clinical relevance of this imbalance could not be fully examined. An adjusted analysis using actual age, baseline outcome values, treatment group, and potentially recruitment centre would provide a more robust estimate of the intervention effect.

The findings have practical relevance for physiotherapists managing occupationally active individuals with repetitive wrist and thumb symptoms. Mobilization with movement may be considered as part of a short-term conservative programme when pain limits active wrist or thumb movement. Tendon-gliding exercises may remain useful as a supervised or home-based component of rehabilitation. However, the present study did not evaluate return to work, typing endurance, productivity, recurrence, treatment adherence, ergonomic modification, medication use, splinting, or long-term outcomes. Consequently, the results should not be interpreted as evidence that either intervention improves occupational participation or prevents recurrence.

The study had several strengths. It used a comparative two-group design, included 126 participants, assessed outcomes at three time points, and applied standardized pain and hand-function measures. The use of mixed repeated-measures analysis allowed the pattern of change over time to be compared between interventions. The study also addressed an occupationally relevant population for whom repetitive hand use may contribute to symptom persistence.

Several limitations reduce the certainty and generalizability of the findings. Participants were recruited through non-probability sampling, and group allocation was based on odd and even study identifiers. This approach may have been predictable and did not provide secure allocation concealment. Participant blinding was not feasible because the interventions were visibly different, and assessor blinding was not documented. Both groups received hot-pack application and stretching, making it impossible to separate the effects of the assigned intervention from the common co-intervention. Treatment fidelity, therapist experience, session duration, home-exercise adherence, medication use, splinting, additional treatment, and adverse events were not reported.

The intervention period was limited to four weeks, with no post-treatment follow-up to evaluate recurrence or durability. The study included typists recruited from three hospitals in Lahore, which may limit generalizability to other occupations, settings, and populations. The diagnostic procedure relied mainly on symptoms and a positive Finkelstein test, while imaging or an independent diagnostic reference standard was not reported. Range of motion was described as an outcome in the original manuscript but was not presented in the Results. The scoring direction of the MHQ also requires verification. Finally, the absence of a reported trial-registration record, detailed sample-size calculation, secure concealment procedure, and complete participant-flow diagram limits transparency.

Future trials should use a computer-generated allocation sequence, concealed allocation, blinded outcome assessment, prespecified primary outcomes, prospective registration, and standardized intervention manuals. Actual age in years, typing exposure, hand dominance, symptom duration, adherence, adverse events, and relevant co-interventions should be recorded. Longer follow-up should evaluate recurrence, sustained hand function, return to work, typing performance, and the added value of combining mobilization with movement, tendon-gliding exercises, and ergonomic modification.

CONCLUSION

Both mobilization with movement and tendon-gliding exercises were associated with reduced pain and hand-related impairment over four weeks in typists with De Quervain's tenosynovitis. Mobilization with movement produced greater short-term improvements in NPRS and analysed MHQ scores at Weeks 2 and 4. These findings support further evaluation of mobilization with movement as part of conservative physiotherapy, but the magnitude and durability of its comparative benefit should be confirmed in trials using concealed allocation, blinded assessment, fully standardized interventions, verified outcome scoring, and longer follow-up.

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