

Comparing Tele-monitoring and Self-monitoring Rehabilitation on Pain, Function, Kinesiophobia, Quality of Life, Exercise Adherence, and Patient Satisfaction in Patellofemoral Pain Syndrome: A Randomised Quasi-experimental Trial

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ABSTRACT

Introduction: Patellofemoral Pain Syndrome is a common musculo-skeletal disorder causing anterior knee pain, reduced function, kinesiophobia, and poor quality of life.

Aim: To compare the physiotherapist-supervised tele-monitoring with self-monitoring rehabilitation in individuals with PFPS.

Materials and Methods: A prospective randomised quasi-experimental trial was conducted at Amity Institute of Health and Allied Sciences involving 62 participants with PFPS. Participants were allocated into Tele- Monitoring (TM; n=32) or Self-Monitoring (SM; n=30) groups. Both groups completed a 6-week exercise programme including strengthening, stretching, proprioceptive, and functional training. The TM group received real-time physiotherapist supervision via smartphone, while the SM group independently maintained exercise diaries. Outcomes measured at baseline, week 3, and week 6 included pain (VAS), function (Kujala Scale), kinesiophobia (Tampa Scale), quality of life (WHO- QOL-BREF), adherence (ATEMPT), and patient satisfaction (NRS). Data were analysed using repeated measures ANOVA, independent t-tests, and Pearson correlation analysis ($p < 0.05$).

Results: Both groups improved significantly across all outcomes ($p < 0.001$). The TM group demonstrated significantly superior outcomes at Week 6 across all six domains compared to the SM group (all $p < 0.001$): VAS pain (1.93 ± 1.14 vs 3.10 ± 1.12 , $t = 5.97$), Kujala function (79.80 ± 6.90 vs 70.50 ± 7.30 , $t = 5.77$), TAMPA kinesiophobia (31.60 ± 4.42 vs 38.50 ± 4.76 , $t = 6.48$), WHO-QOL (69.40 ± 6.10 vs 61.30 ± 6.80 , $t = 5.54$), ATEMPT adherence ($92.30 \pm 4.80\%$ vs $81.40 \pm 5.90\%$, $t = 8.84$), and patient satisfaction (9.10 ± 0.62 vs 7.60 ± 0.78 , $t = 9.38$). Pearson correlation analysis revealed a strong positive relationship between adherence and satisfaction in the TM group ($r = 0.87$, $p < 0.001$) and a moderate positive relationship in the SM group ($r = 0.72$, $p < 0.001$), confirming that higher adherence was significant with greater treatment satisfaction.

Conclusion: Physiotherapist-supervised tele-monitoring rehabilitation is more effective than self-monitoring in improving clinical and patient-centered outcomes in PFPS. Structured remote supervision enhances adherence and satisfaction, supporting its integration into routine PFPS rehabilitation practice.

Keywords: Kujala Score, Tampa Scale, Visual analogue scale.

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