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People residing in rural areas of India are more susceptible to su e from osteoarthritis of the knee, spine and hip since agriculture is the main occupation. Along with long hours of working in the elds, the domestic tasks of li ing heavy weights, squatting for long hours while cooking and milking cows further makes them prone to develop OA.

Once diagnosed with OA, the patients nd it di cult to go to a specialized health care delivery unit because of the long travel hours. Furthermore loss of their daily income accentuates this problem. us this study was aimed to take into consideration these factors by providing telerehabilitaion to the patients and assessing its e ectiveness when compared to a ve-week progressive home exercise program.

Methods

One hundred and twelve patients (n = 44 males; 68 females) with osteoarthritis of the knee with mean age 51.35 year, BMI 29.6, were randomly assigned to the study. e main inclusion criterion was a diagnosis of osteoarthritis of the knee based on ful lments of one of the following clinical criteria developed by Altman et al. [7]. 1) knee pain, age 38 years or younger, and bony enlargement; 2) knee pain, age 39 years or older, morning sti ness for more than 30 minutes, and bony enlargement; 3) knee pain, crepitus on active motion, morning sti ness for more than 30 minutes, and bony enlargement; or 4) knee pain, crepitus on active motion, morning sti ness for more than 30 minutes, and the age 38 years or older. Altman et al. [7] found these criteria to be 89% sensitive and 88% speci c for osteoarthritis. Patients were excluded if they could not attend the required number of visits, had received a cortisone injection to the knee joint within the previous 30 days or had a surgical procedure on either lower extremity in the past 6 months [7]. All patients were instructed to continue taking any medications that had been initiated 30 days or more prior to enrolment in this study. All patients were asked to give written informed consent to be enrolled in the study. All the physiotherapists involved in the study were post graduates with minimum experience of ve years in orthopaedic physiotherapy. A er randomly allocating the patients via envelope method, physiotherapist A performed the pre evaluation of the patients in both groups. Physiotherapist B demonstrated the initial exercises to all the patients in a uniform manner by answering their queries and clearing their doubts. Physiotherapist C conducted the videoconferencing session for progression of exercises, supervision of exercise completion, additional demonstration, and consultation every week for 5 weeks for group A and was also involved in the telephonic consultation for the same parameters in group B. Both the groups were instructed to perform the exercises at home on daily basis. e exercises given to both the groups were as described by Chamberlain et al. which included exibility, strength, endurance and active range of motion activities [8]. For videoconferencing in group A, the assessors used the Logitech camera (2 megapixel) and the Skype so ware with broad band internet facility of 6 mbps. e patients then engaged in a 30-min group therapy session, occurring once per week for 5 weeks, all administered by the same therapist C. For queries individual patients adjusted the camera for the therapist to consult them regarding each exercise [9].

For group B in addition to the telephonic consultation, exercise hand outs were provided for reference. e patients were made aware of the side e ects and contraindications (swelling, increase joint pain) of excessive exercise and were instructed to report the same through telephone or during videoconferencing session. Both groups were evaluated for functional outcome using the WOMAC index at the end of 6 weeks. Western Ontario MacMaster (WOMAC) Osteoarthritis Index is a self administered scale consisting of 3 sections with 24 items total (5 Pain, 2 Sti ness, & 17 Physical Function (PF). e Psychometric Properties for all three dimensions show no statistically signi cant di erence between tests and retest scores [10]. A literature review reports estimates of test-retest reliability for the WOMAC pain sub-scale to vary between 0.77 and 0.86 [11]. Interclass correlation coe cients for the individual subscales were, Pain = 0.74; Sti ness = 0.58; PF = 0.96 [12]

Statistical Analysis and Results

Physical function as measured by WOMAC index showed signi cant di erence between pre and post values in both group A and B. e percentage of di erence for pain, sti ness, and physical function for group A were 53.7%, 58.94% and 50.05% respectively. On other hand for group B .94%7s3(forAdpd RforAliabi140(Bs)-242(Physical)-

exercises supported with telephone consultation to decrease pain and sti ness and increase function for individuals with OA of the knee. Telerehabilitation is a promising service delivery model to improve access to physiotherapists for individuals in rural communities su ering from OA. Additionally, patients expressed satisfy action with their TR experience and the clinical skills of the physiotherapists during the TR sessions. A major strength of Internet-based videoconferencing is the ability to provide telehealth services to individuals in their natural environments. Additionally, voice and picture quality were adequate for telehealth purposes.

On the positive side, it is worth noting that patients could continue with their daily tasks without any loss of wages and still nd an improvement in their condition. In addition physiotherapists may have improved in their communication and dialoguing with patients because they had to explain the procedures very clearly. is study demonstrates the potential to use telerehabilitation to improve access and reduce costs associated with receiving care for OA for patients living in rural communities.

References

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