

Feasibility and Effects of a Digital, Synchronous Rehabilitation Maintenance Program for People with Post-COVID Condition: Results from the Reload 2.0 Study

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BACKGROUND AND AIMS

Although rehabilitation improves functional outcomes in post-COVID-19 condition (PCC),^{1,2} many patients do not fully recover and require long-term care. Evidence-based and accessible maintenance strategies following rehabilitation are lacking.

The aim of this study was to investigate whether extending inpatient rehabilitation with a virtual maintenance program improves quality of life in individuals with PCC.

MATERIALS AND METHODS

In this single-center RCT, participants with PCC were randomized (1:1) to inpatient rehabilitation (3 weeks) followed by usual care (control) or by a 12-week virtual, synchronous maintenance program (intervention, INT). Effectiveness outcomes (SF-12 mental [MCS] and physical component score [PCS], quality of life [EQ-5D], Work Ability Index [WAI], Pittsburgh Sleep Quality Index [PSQI], Generalized Anxiety Disorder-7 [GAD-7], Patient Health Questionnaire-9 [PHQ-9], and 1-minute sit-to-stand test) were assessed at baseline (T1) and at 15 weeks (T3). Safety outcomes (Fatigue Assessment Scale [FAS], healthcare contacts, sick days) were assessed after inpatient rehabilitation (T2) and at T3. The primary outcome was the change in SF-12 PCS from T1 to T3. Analyses followed the intention-to-treat principle using multiple imputation. Post-hoc subgroup analyses compared adherent (INT_{ADH+}, ≥80% maintenance attendance) and less adherent INT participants (INT_{ADH-}, <80%). Satisfaction and usability were rated on a 5-point Likert scale.

RESULTS

Ninety participants were included (67% female; mean age: 51±12 years; 22+14 months between COVID-19 and rehabilitation). SF-12 PCS improved similarly in both groups, with no between-group difference ($\Delta=0.4$ points; 95% CI: -3.8-3.1; $p=0.84$). No significant between-group

differences were found for secondary outcomes, except for WAI score, which improved significantly more in the INT than in the control group ($\Delta=2.4$ points; 95% CI: 0.2–4.6; $p=0.03$; Cohen's $d=0.49$). Adherence to the virtual program was high (85.5%). INT_{ADH+} showed significantly greater improvements in EQ-5D, PSQI, and GAD-7 compared with INT_{ADH-}. Satisfaction with the virtual program was high, and no intervention-related adverse events were observed.

CONCLUSION

The extended rehabilitation approach was not superior to inpatient rehabilitation alone in improving physical quality of life in PCC. Nevertheless, the observed improvement in work ability indicates that

continued structured support may enhance participation-related recovery beyond the initial rehabilitation phase. High adherence and patient satisfaction support synchronous virtual maintenance programs as a feasible and scalable model for long-term PCC care.³

References

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