Effects of a behavioural internet-based after-care program on physical activity and self-concordance in persons with Multiple Sclerosis

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Background: Physical activity and exercise (PA) are an important therapeutic component of inpatient rehabilitation for persons with Multiple Sclerosis (pwMS). Internet-based interventions appear promising to enable pwMS to maintain motivation and transfer the acquired knowledge and skills for a physically active lifestyle after inpatient rehabilitation. We evaluated the combined effects of a behavioural internet-based PA promotion program after a multimodal MS-specific rehabilitation on PA levels and exercise-related self-concordance in pwMS.

Methods: In this pilot randomized controlled trial, pwMS (age ≥ 18 years, EDSS ≤ 6.0) were randomly assigned after rehabilitation to a three-month intervention (IG), comprising an exercise training module and a blended-learning PA promotion module, or to a control group (CG). The Baecke PA questionnaire and the concordance of sport- and exercise-related goals questionnaire were applied at baseline, at the end of rehabilitation and immediately post-intervention. Within- and between-group changes were analysed with a linear mixed model.

Results: 64 pwMS were included in the data analysis (n_{IG}=34, n_{CG}=30). Both the IG (1.00; 95% CI 0.46 to 1.54, $p < 0.001$) and the CG (0.62; 95% CI 0.06 to 1.19, $p < 0.05$) significantly increased PA, but no between-group differences in mean change of the sport score (0.37; 95% CI - 0.41 to 1.15, $p = 0.35$) from baseline to post-intervention were observed. Regarding self-concordance, significant within-group changes were present in the IG (0.97; 95% CI 0.07 to 1.86 $p < 0.05$) in contrast to the CG (-0.44; 95% CI - 1.39 to 0.51, $p = 0.36$) and between-group difference were significant (1.41; 95% CI 0.10 to 2.7, $p < 0.05$) from baseline to post-intervention.

Conclusion: This study provides preliminary evidence for the importance of an after-care program to sustain effects on PA but also on self-concordance as an important determinant for long-term PA levels in pwMS. Longer-lasting programs may have more sustained effects.