

NEURO REHABILITATION EFFECTIVENESS BASED ON VIRTUAL REALITY AND TELE REHABILITATION IN PATIENTS WITH MULTIPLE SCLEROSIS IN ARGENTINA. 'REAVITELEM' STUDY.

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Introduction and Purpose

Multiple sclerosis (MS) is the most common cause of nontraumatic disability in young adults. In the past years, Virtual Reality has emerged as a new treatment approach in neurorehabilitation (NR). So far, in Argentina, no research work has been carried out on the use of virtual reality (VR) and tele rehabilitation (TR) in people diagnosed with Multiple Sclerosis (PWMS) as well as on the impact on standard measures of NR in this population.

REAVITELEM Study is a specific NR intervention program based on Virtual Reality at center (VRC) and Tele-rehabilitation (TR) for PWMS in Argentina. By using TR, we extend our intervention from specialized centers, increasing the participant's adherence to treatment, as well as including MSP across our vast country. Assess a standardized and specific NR intervention program based on VRC and TR acceptability and effectiveness; and its functional impact on activity limitations; participation restrictions; adherence to treatment and quality of life related to health.

Methods

This is the first national multicenter study with a 12-week program intervention of VRC and TR.

Participants were assessed at baseline, at the 6th week, and at the 12th week.

Phase I: recruitment and gather of 5 NR Centers from Argentina by the coordinator center (INEBA) to unify evaluation and intervention criteria. Phase II, all centers completed VRC and TR programs. Intervention was 30-minute session, twice a week for 12 weeks.

Outcome measures: Expanded Disability Status Scale (EDSS), Fist and Key Pinch Dynamometry, Beck Depression Inventory-Fast Screen, Fatigue Severity Scale, Functional Independence Measure (FIM), International Questionnaire investigating Quality of life in MS (MusiQol) and a Visual Analogue Scale (VAS) of satisfaction after treatment.

Results

A total of 54 PWMS (23 males/31 females) were recruited for VRC. Afterwards, 14 completed TR. The mean age for VRC was 44.72 (SD ± 13.74) and 41.71 (SD ± 10.5) for TR. The median EDSS was 4, 75 for RVC and 4, 5 for TR. At VCR, 42 have RRMS, 8 have SPMS and 4 PPMS. At TR, 13 have RRMS and 1 have SPMS (Table 1). The VAS reported an excellent level of satisfaction after treatment with an average of 9, 02 (SD±1.35) in VRC and 9.42 (SD±0.66) in TR. There were significant differences for MusiQol, which improved from baseline to the post-intervention assessment at VCR (p=0, 00000002) and at TR (p=0.004) (Table 2); as well as FIM post-intervention assessment at VCR (p=0.02) and at TR (p=0.04) (Table 3).

Table 1: Baseline Demographic data

	RV Institutional	Tele Rehabilitation
N	54	14
years (media, min-max)	44,72 (18-77)	41,71 (25-58)
Sex (W/M)	31 – 23	6 – 8
	57,4% / 42,6%	42,9% / 57,1%
MS Type		
EMPP	4	1
EMSP	8	0
EMRR	42	13
Scholarship		
0-7 y	3	3
7 - 12 y	20	4
> 12 y	31	7
Employment status		
Full-Time	18	7
Part-Time	9	1
License	4	0
retired	5	1
Disability retired	10	3
unemployed	8	2
DMD		
Y/N	42 – 12	10 – 4
EDSS (median, min, max)	4 (1-7)	4 (1-7)
BID-II (media: initial – final)	3,61 – 2,94	4,6 – 3,65
FIM (media: initial - final)	111,69 – 113,66	112-112,57
FSS (media: initial - final)	3,31 – 3,46	3,29 – 3,18
MUSIQOL (media: initial- final)	70,65 – 77,36	68,15 – 74,26

Table 2

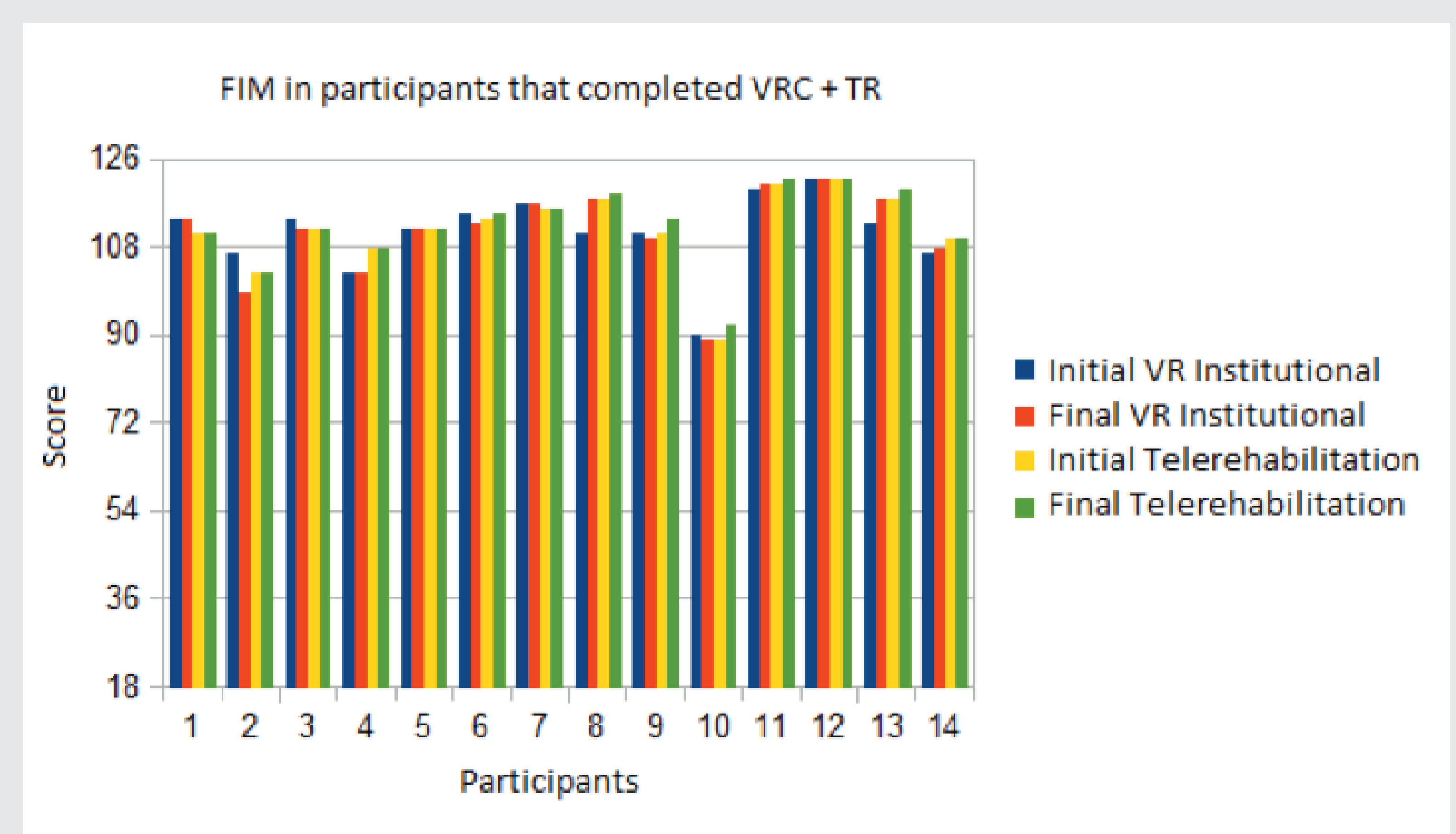
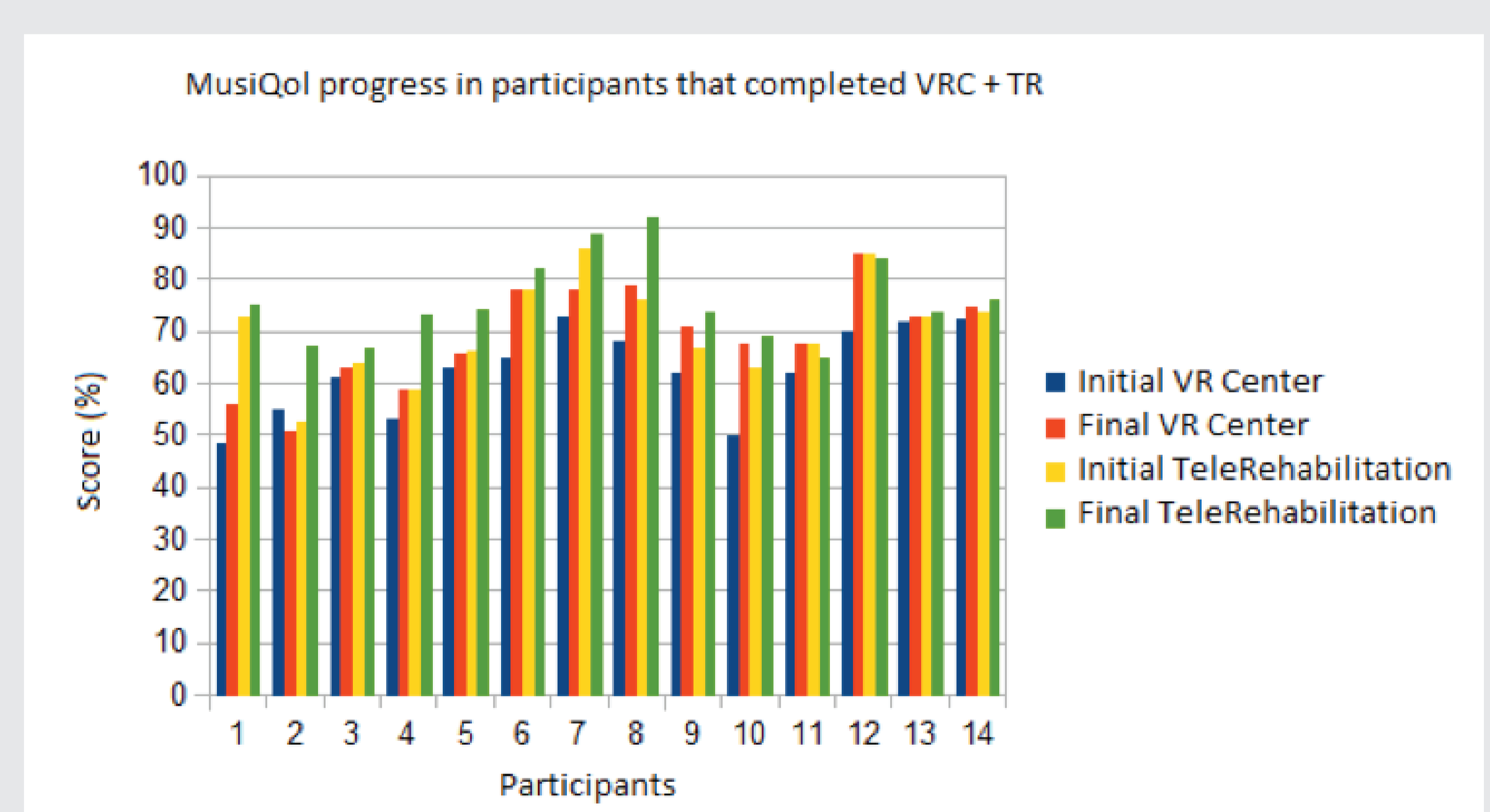


Table 3



Conclusions

The results of this study suggest that the NR treatment based on Virtual Reality in PWMS in Argentina, is an additional effective tool, which favors improvements in the level of functioning in activities of daily living, quality of life, mood and satisfaction with the treatment.