Psychomotor Slowing alters gait Velocity, Cadence and Stride Length in Psychosis

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INTRODUCTION

Psychomotor Slowing (PS)

- up to 50% of patients with schizophrenia
- less spontaneous motor activity, less fine motor dexterity, and slowing of gait
- association with poorer functional outcomes

Hypokinetic Motor Abnormalities (HMA)

➢ PS, Parkinsonism, Catatonia

→ We recruited schizophrenia patients **with** and **without** psychomotor slowing (**Slow** and **Nonslow** group) and healthy **Controls** to investigate whether an objective gait carpet can distinguish between various gait abnormalities.

METHODS

Measuring Gait with GaitRite®

Walking Conditions:

- Self-selected speed
- Maximum speed
- Head reclination
- Eyes closed

Walking Parameters:

- Velocity (cm/s)
- Cadence (footfalls/min)
- Stride Length (cm)

Measuring HMA with expert rating scales

mSRRS = Motor Salpêtrière **Retardation** Rating Scale
UPDRS = Unified **Parkinson's** Disease Rating Scale
BFCRS = Bush-Francis **Catatonia** Rating Scale

Sample Characteristics

	Groups						
	Slow *N* = 70		Nonslow *N* = 22		Controls *N* = 42		
Demographics	*mean*	*sd*	*mean*	*sd*	*mean*	*sd*	**Comparison**
Sex (% f)	50%		55%		50%		*p* = .74
Age (y)	35.4	11.9	32.7	10.5	36.7	12.9	*p* = .46
BMI	25.4	4.9	25.3	4.9	23.8	4.0	*p* = .18
Duration of illness (y)	9.8	9.4	6.5	7.4			*p* = .09
Nr. of episodes	5.0	4.7	3.3	2.6			*p* = .14
Medication (olz eq)	17.2	10.7	14.3	10.4			*p* = .24
mSRRS	10.4	3.0	2.9	1.7			*p* < .001***
BFCRS	5.3	4.0	1.3	1.7			*p* < .001***
UPDRS	20.2	11.1	8.5	5.8			*p* < .001***
PANSS total	79.9	16.3	65.0	14.7			*p* < .001***
PANSS negative	23.7	6.1	15.1	4.0			*p* < .001***
PANSS positive	16.0	5.1	16.2	4.7			*p* = .67

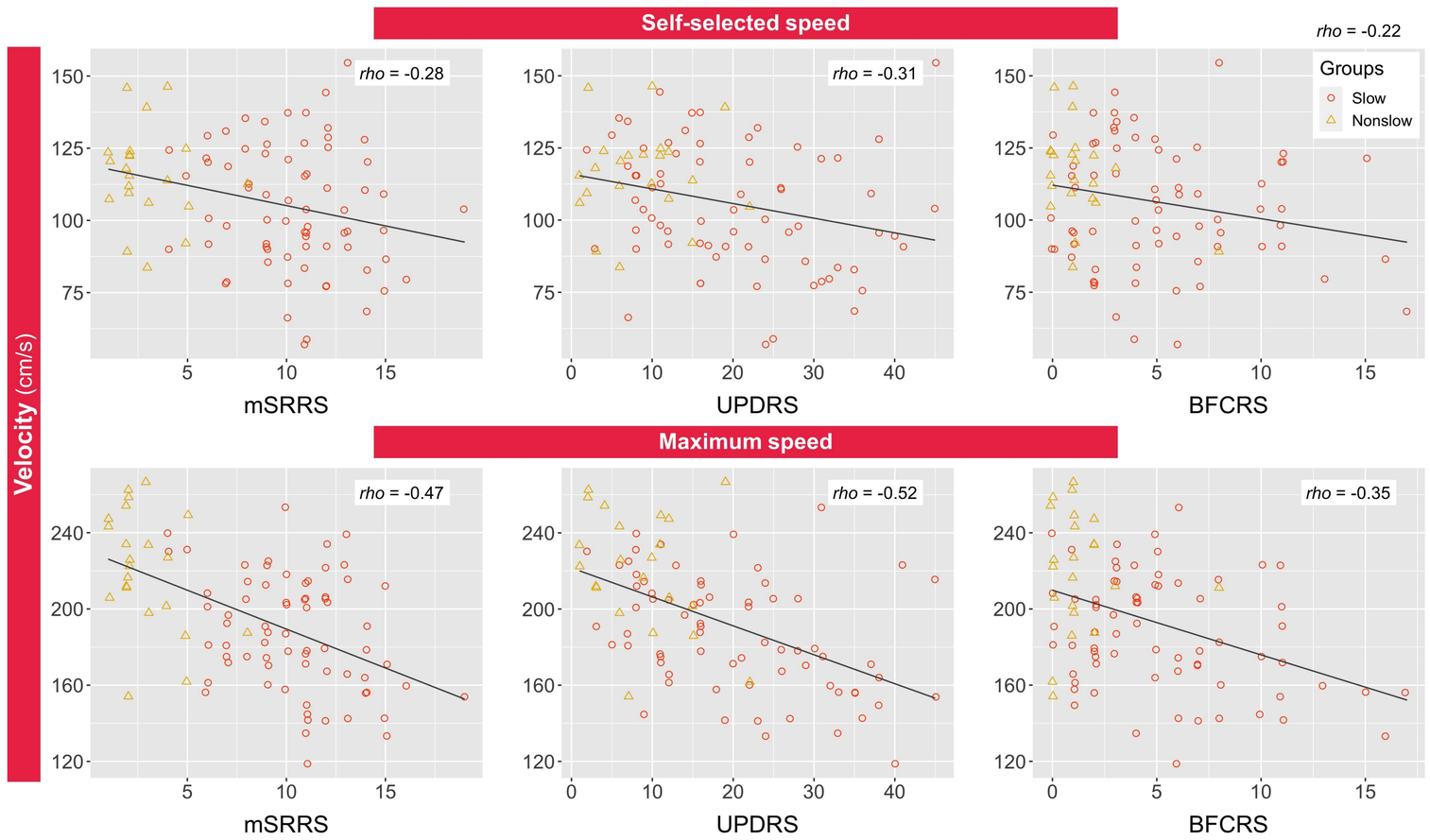
f = female, y = years, BMI = Body Mass Index, Nr. = Number, olz eq = olanzapine-equivalent (mg/day), PANSS = Positive and Negative Syndrome Scale, * *p* < .05, ** *p* < .01, *** *p* < .001

RESULTS

1. Ubiquitous spectrum of gait impairment : → **Slow > Nonslow > Controls**
2. Negative association of gait velocity and expert rated HMA:
   → The **slower** the gait velocity, the **severer** the expert rated HMA

1. **Groupdifferences in Gait Parameters**

2. **Correlations between HMA and Velocity**



CONCLUSION

1) Gait impairments exist in a spectrum with patients with PS and healthy controls at opposite ends. Group differences increase with task difficulty.

2) All HMA are associated with gait velocity. Moreover, they correlate more strongly during maximum speed than self-selected speed.

3) Patients with PS are specifically impaired when an adaptation of gait patterns is required.

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