



Describing the Population Characteristics of Multiple Sclerosis Related Intention Tremor Using the Multidimensional Assessment of Tremor



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Background & Rationale

- Current assessment tools have a unidimensional view of tremor¹
- MS related tremor disrupts daily activities such as eating and handwriting²
- A multidimensional assessment offers a comprehensive picture of the tremor & can guide treatment¹
- The MAT is a self report scale measuring the severity and functional impact of tremor¹
- There has been no multidimensional characterization of tremor to date.

Purpose

To describe characteristics tremor in people MS experiencing tremor that include:

- 1) Their description of tremor
- 2) The psychosocial impact
- 3) Tremor severity
- 4) The functional impact

Methods

Recruitment

- Convenience sample recruited through MS society and UBC MS clinic
- Participants completed the MAT assessment

Inclusion Criteria

- 19 years or older with definite diagnosis of MS and experiencing tremor
- Living in the community and able to comprehend English

Exclusion Criteria

- Cognitive impairment impeding ability to complete the MAT

Measure: The Multi-dimensional Assessment of Tremor (MAT), EDSS & demographic questionnaire

The MAT Assessment

The MAT is a four part measure. Parts A, B & D are self report while Part C is administered.

Together the 4 parts of the MAT provide an evaluation & characterization of the tremor experience.

Part A: Description of Tremor

(A) Description of Tremor:

What parts of the body do your experience tremor? (Check all that apply)

Head Trunk Right UE Left UE Right LE Left LE

Is your tremor present throughout the day?

Intermittent Tremor Persistent Tremor Other _____

Are there any times during the day when your tremor is worse?

Morning Afternoon Evening Other _____

Do any of the following affect your tremor?

Fatigue Stress or stressful events

Are there any activities that you find make your tremor worse?

No Yes - If yes, Which activities? _____

Are there any activities that you find make your tremor better?

No Yes - If yes, Which activities? _____

Briefly describe a typical day for yourself? Include daily routine.

Part B: Psychosocial Implications

(B) Psychosocial:

Do you ever feel down (depressed) due to your tremor?

No Yes - If yes: Does it stop you from engaging in activities? No Yes

Do you ever feel embarrassed by your tremor?

No Yes - If yes: Does it stop you from engaging in activities? No Yes

Do you ever feel frustrated by your tremor?

No Yes - If yes: How so? _____

Additional information and comments:

Part C: Tremor Severity Scale

(C) Tremor Severity Scale:

	Postural	Intention	Task-Related	Subtotal
Head				
Trunk				
R Upper Limb				
L Upper Limb				
R Lower Limb				
L Lower Limb				

Scale: 0 = No tremor
1 = Slight tremor (amplitude < 0.5 cm), may be intermittent
2 = Moderate tremor (amplitude 0.5-1 cm), may be intermittent
3 = Marked tremor (amplitude 1-2 cm)
4 = Severe tremor (amplitude > 2 cm)

Part D: Functional Severity Scale

(D) Functional Severity Scale: Self Report Scale

Activity	Severity
Feeding	
Bathing	
Toileting	
Grooming	
Make-up/brushing teeth	
Cooking	
Simple meal prep	
Housework	
Shopping	
Computer typing	
Computer - mouse use	
Watching TV/Remote use	
Exiting out	
Social Outings	
Reading	
Telephone Use	
Exercise	
Hobbies	
Key in Lock	
Plug in Socket	
Insert CD/DVD	
Handling Money	
Using Scissors	
Writing	

Legend:
0 Can perform activity without difficulty
1 Can perform activity with slight difficulty
2 Can perform activity with moderate difficulty
3 Can perform activity with considerable difficulty
4 Can perform activity with extreme difficulty or not at all

Demographics

Characteristics		n=12
Age (years)	Mean	58
	Range	30-74
Sex	Male	3 (25%)
	Female	9 (75%)
Employment Status	Not Employed	9 (75%)
	Full time	1 (8.3%)
	Part time	1 (8.3%)
	Other	1 (8.3%)
MS Type	PP ^a	2 (16.7%)
	SP ^b	3 (25%)
	RR ^c	6 (50%)
	Does not know	1 (8.3%)
Duration of MS (years)	Mean	21
	Range	5 - 42
EDSS ^d	Mean	5.86
	Range	2 - 8

Hand Status related to Tremor

Hand Affected	Left Only	3 (25%)
	Right Only	0 (0%)
	Both	9 (75%)
TSS ^e	Mean	21
	Range	0 - 44
FSS ^f	Mean	37
	Range	0 - 80
TIS ^g	Low	6 (50%)
	Moderate	6 (50%)
	High	0 (0%)

^a PP – Primary Progressive

^b SP – Secondary Progressive

^c RR – Relapse Remitting

^d Expanded Disability Status Scale: 0 to 10 (most severe disability)

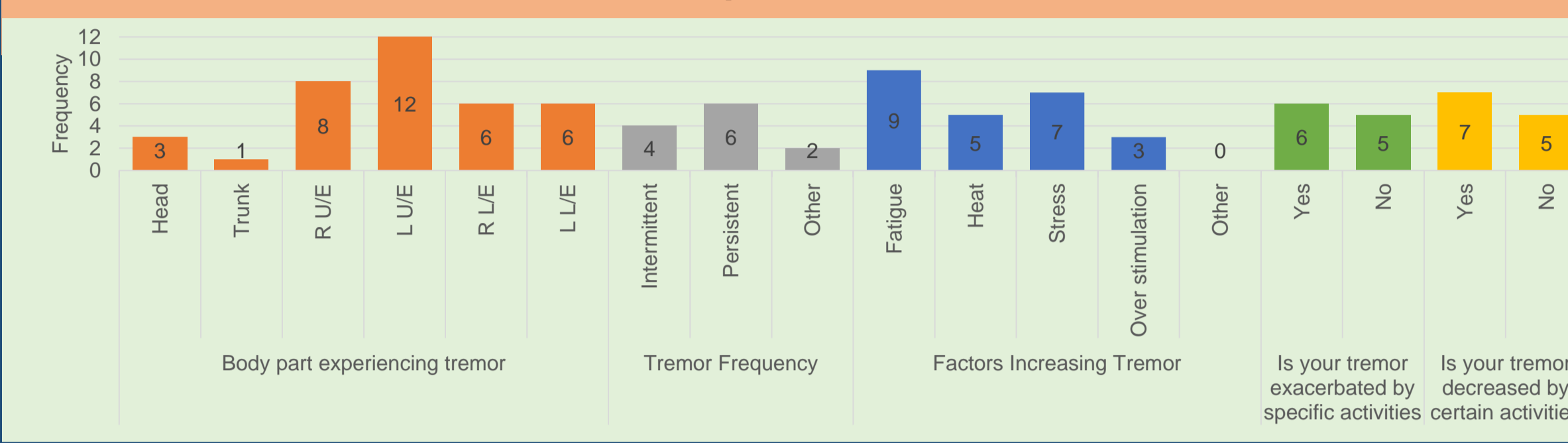
^e Tremor Severity Score: 0 to 100 (most severe tremor)

^f Functional Severity Scale: 0 to 100 (greatest impact on function)

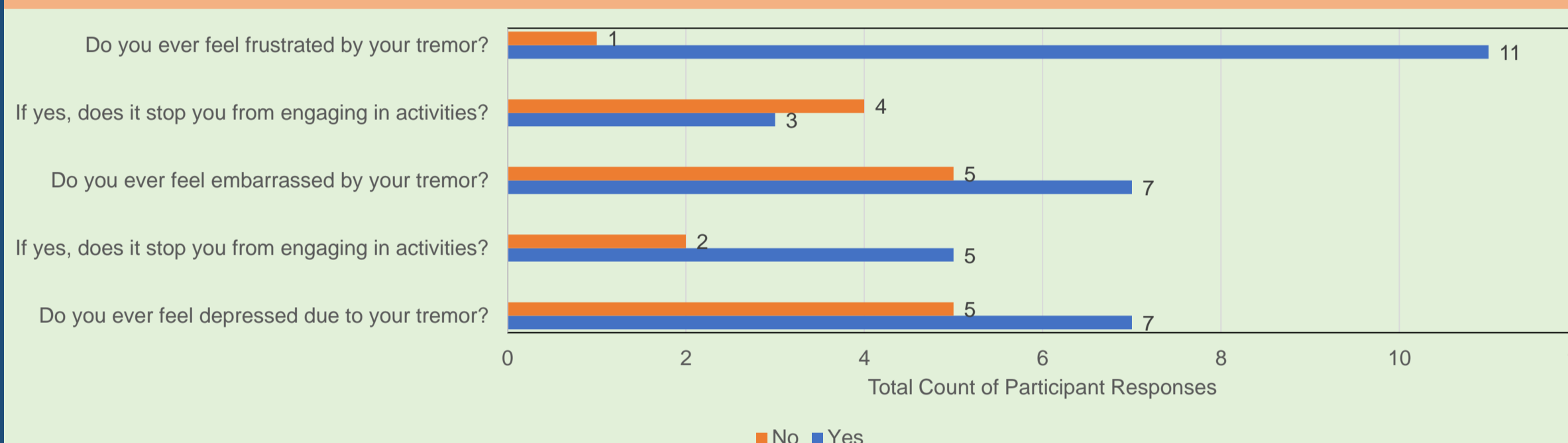
^g Tremor Impact Score – Low - 0-29: small tremor amplitude, no disengagement from tasks
Moderate - 30-70: moderate tremor amplitude, disengage from some tasks
High - 71-100: high tremor amplitude, disengage from many tasks

Results

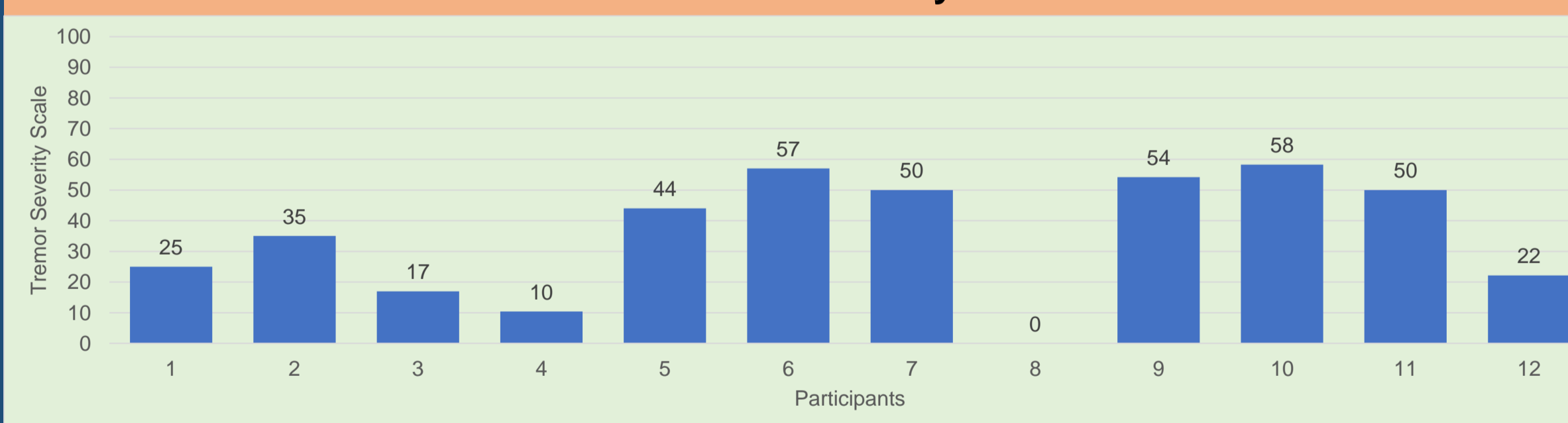
Description of Tremor



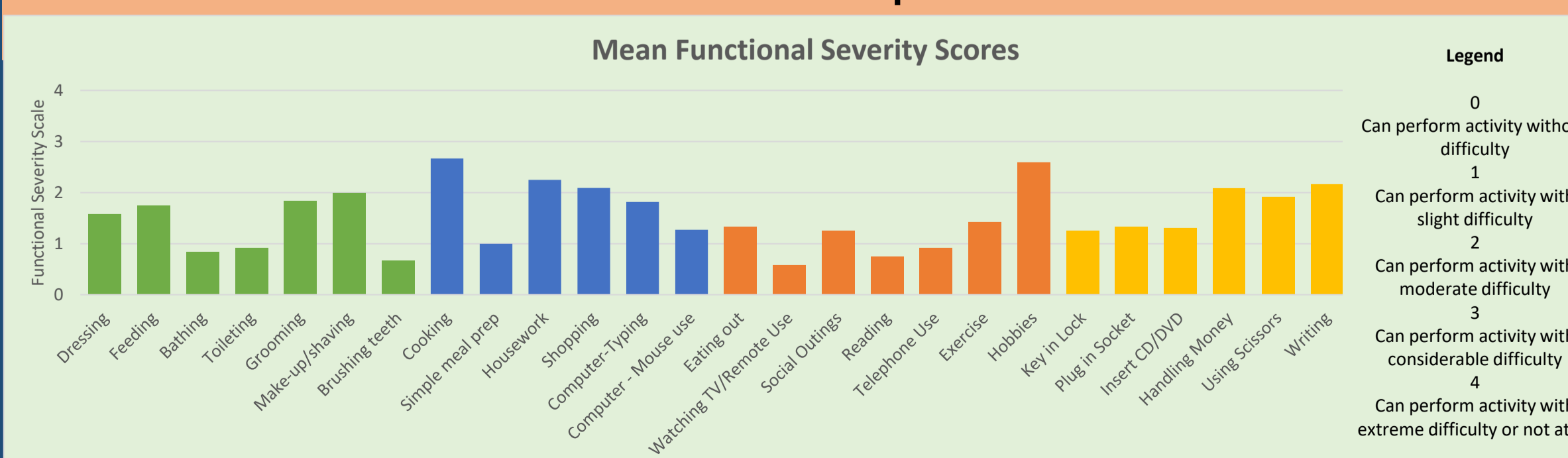
Psychosocial Implications



Tremor Severity



Functional Impact



Discussion

Summary

- Tremor is an individualized experience that can have impact on areas of self care, productivity, and leisure activities
- Tremor can be experienced in all limbs as well as the trunk
- Tremor may be increased by external and internal factors, exacerbated by certain activities, and relieved by others
- Experience of tremor has marked psychosocial impact, as the majority of participants held negative attitudes towards their tremor
 - ❖ Frustration
 - ❖ Embarrassment
 - ❖ Depression
- Cooking, hobbies, writing, and handling money identified as activities most impacted by tremor
- Task specific intervention to increase activity engagement may be beneficial for many people experiencing tremors

Tremor Management

Factors reported to decrease tremor:

- Strengthening exercises
- Cannabis use
- Rest
- Sleeping

Factors reported to increase tremor:

- Fatigue
- Stress
- Activities involving fine motor skills

Limitations

- Possible response bias for individuals with high tremor due to requirement to contact researchers via email or phone
- Small size of the sample limits the generalizability of the results
- Convenience sampling may not be representative of a wider population
- Participant recruitment from single clinic results in selection bias

Conclusion

The present research characterizing tremor and tremor experiences allows for better understanding of general MS population who experience tremor.

However, tremor and tremor experiences are highly individualized.

Use of a multidimensional assessment of tremor informs global understanding of individual tremor exp.

Future Directions

- Recruitment of additional participants may increase insights into psychosocial implications of tremor, as well as tremor impact on daily functioning
- It is recommended that future research trial the MAT to direct intervention planning

References

1. Daudrich, B., Hurl, D., & Forwell, S. (2010). Multidimensional Assessment of Tremor in Multiple Sclerosis: A Useful Instrument. *International Journal of MS Care*, 12(1), 23-32.
2. Hawes, F., Billups, C., & Forwell, S. (2010). Interventions for upper-limb intention tremor in multiple sclerosis: A feasibility study. *International Journal of MS Care*, 12(3), 122-132.