What Do People with MS Want in a Physical Activity or Exercise Intervention?

Heather M. DelMastro, MS[1], Lindsay O. Neto, MPH[1], & Elizabeth S. Gromisch, PhD[1-3]

[1]Mandell Center for Multiple Sclerosis, Mount Sinai Rehabilitation Hospital, Trinity Health Of New England, Hartford, CT
[2]Department of Medical Sciences, Frank H. Netter MD School of Medicine at Quinnipiac University, North Haven, CT
[3]Department of Neurology, University of Connecticut School of Medicine, Farmington, CT
Contact information: Heather DelMastro: Heather.DelMastro@trinityhealthofne.org

Trinity Health Of New England | Mount Sinai Rehabilitation Hospital

Trinity Health Of New England | Mandell MS Center

Background

- Physical activity (PA) is associated with numerous benefits for people with multiple sclerosis (PwMS).
- Despite the benefits of PA in PwMS, only 20% of PwMS reach the recommended level of ≥ 150 minutes of exercise and/or lifestyle PA per week.[1]
- Even in newly diagnosed PwMS, 36% were insufficiently physically active, prompting the need for efficacious PA interventions.[2]

Objectives

The aims of this study were to:

1. Determine PwMS' preferences for PA and exercise (EXS) intervention locations, types of activity, settings, delivery, frequency, intensity, and duration.
2. Determine if there are differences based on:
   - Meeting PA recommendations (≥ 150 minutes per week).
   - Disability level.

Methods

Survey Study Design

- A national sample of 302 individuals with a diagnosis of MS.
- Data were collected through a Trinity Health Of New England, Institutional Review Board approved Microsoft Forms survey that took approximately 20-30 minutes to complete.

Main Outcome Measures:

1. Desired PA and EXS interventions: Location, setting, activity type, intensity, delivery, check-in, duration, and frequency.
2. PA Status:
   - ≥ 150 minutes per week - meets PA recommendations (Meets-PA).
   - < 150 minutes per week - does not meet PA recommendations (No-PA).
3. Disability level via the Patient Determined Disease Steps (PDDS): Mild (0-1), Moderate (2-3), Severe Ambulant (4-6), and Severe Non-Ambulant (7-8).

Statistical Analysis

- Frequencies of desired PA and EXS for participants overall were reported.
- Fischer's Exact tests were performed to determine if there were differences based on PA and disability status using SPSS Version 26.0.

Table 1.Overall demographics presented as n (%)s, unless otherwise noted

Age	median (IQR)	53.0 (21.0)
Gender	Man	53 (17.5%)
	Woman	247 (81.8%)
	Non-Binary	2 (0.7%)
Race [a]	Black	22 (7.3%)
	White	267 (88.4%)
	Mixed-race	9 (3.0%)
	Asian	3 (1.0%)
Ethnicity [a]	Not-Hispanic	288 (95.4%)
	Hispanic	13 (4.3%)
Education	≤12 years	21 (7.0%)
	>12 years	281 (93.0%)
Disease subtype [b]	RRMS	238 (78.8%)
	SPMS	33 (10.9%)
	PPMS	28 (9.3%)

Abbreviations: PPMS: Primary progressive MS; RRMS: Relapsing remitting MS SPMS: Secondary progressive MS
[a] n=301, [b] n=299

Results

Table 2. Overall preferences for PA programs for the top three choices per category

Location	Remote (at home)	80.50%
	Gym or fitness center	60.60%
	In-clinic	22.80%
Setting	Alone (following a program)	76.50%
	One on one with a trainer	53.60%
	Group exercise class	45.70%
Activity Type	Strength	86.10%
	Walking	78.80%
	Stretching	77.50%
Intensity	Moderate intensity	81.50%
	Low intensity	39.10%
	High intensity	23.50%
Delivery Method	Digital videos	63.90%
	Digital app	61.30%
	Physical program	57.60%
Check-in Method	Texting	60.60%
	Activity tracker	50.70%
	Email	47.40%
Length of Session	30-45 minutes	50.70%
	15-30 minutes	43.00%
	45-60 minutes	31.80%
Frequency of Sessions	3 days/week	44.00%
	5 days/week	31.10%
	4 days/week	29.50%

PwMS who already meet PA recommendations preferred performing PA at a gym/fitness center, group exercise classes, high and moderate intensity, longer duration sessions, 5 days per week more than those who are not already meeting PA recommendations

Table 3. Differences in preferences based on PwMS meeting PA recommendations status

Topic	Choice	Meets-PA	No-PA	p-value
Location	Gym/fitness center	68.50%	45.60%	<.001
Setting	Group Exercise	50.30%	36.90%	0.029
Actvity Type	Strength	89.80%	80.40%	0.031
	Aerobic [a]	70.60%	46.10%	<.001
Intensity	High intensity	31.50%	8.80%	<.001
	Moderate intensity	88.80%	68.60%	<.001
	Low intensity	27.40%	61.80%	<.001
Length of Session	15-30 minutes	36.00%	56.90%	0.001
	30-45 minutes%	57.40%	38.20%	0.002
	45-60 minutes%	40.10%	15.70%	<.001
Frequency	5 day/week	35.50%	23.30%	0.036

*There were no significant differences between the other top three rated preferences
[a] Aerobic activity was included due to the high preference of PwMS who meet PA recommendations

There were no significant differences in preferences based on disability levels.

Discussion

- Participants were 81.6% women, 88.4% White, 95.4% not-Hispanic, 93.0% had over 12 years of education, and 78.8% had Relapsing MS.
- Overall, the majority (>50%) of PwMS were interested in:
  - Performing remotely (at home) or at a gym or fitness center.
  - Alone (following a program) or one on one with a trainer.
  - A mix strength, walking, stretching, balance (70.9%), and aerobic (61.9%) exercises.
  - Moderate intensity.
  - Receiving their PA program through digital videos, digital app, or a physical program.
  - Checking-in through texting, an activity tracker, or by email.
  - Sessions that were 30-45 minutes long.
- However, the number of days per week were variable, with none above 50%.

Conclusion

- The results demonstrate that PwMS are interested in PA and EXS interventions, with several preferences regarding how the program is designed.
- There were differences in preferences based on whether a person was already meeting PA recommendations, but there was no difference based on disability levels.
- Over 80% of the participants wanted a PA program to be remote, include strength training, and be at a moderate level of intensity.
- This survey study will help incorporate patient input into the design of interventional studies and PA programs to benefit the PwMS in the future.

Acknowledgements

This study was performed on data collected as part of a study supported by an internal William P. Haas Grant conducted at The Joyce D. and Andrew J. Mandell Center for Comprehensive Multiple Sclerosis Care and Neuroscience Research at the Mount Sinai Rehabilitation Hospital, Trinity Health Of New England, and approved by the Trinity Health Of New England Institutional Review Board. Dr. Gromisch is a Harry Weaver Scholar of the National MS Society.

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