

Purpose

There is a disconnect between the evidence of benefits and rates of participation in physical activity among persons with multiple sclerosis (MS) that has prompted interest in identifying correlates of physical activity. Such correlates are necessary for informing the design of behavioral interventions. This study examined self-regulation strategies as correlates of physical activity in persons with MS.

Methods

Participants: 69 persons with MS who had a mean age of 50.5 ± 8.9 years and median EDSS of 4.0 (2.0).

- Main Outcome Measures:
- Physical Activity Self-Regulation Scale (PASR-12)
  - Godin Leisure-Time Exercise Questionnaire (GLTEQ).
  - Exercise Self-Efficacy Scale (EXSE)

Results

Those who were categorized as insufficiently active using the GLTEQ reported lower overall self-regulation (F=8.93; p = 0.001), self-monitoring (F=8.67; p = 0.001) and relapse prevention (F=10.61; p = 0.001) scores on the PASR-12 than both moderately active and sufficiently active individuals.

Table 1. Values of self-efficacy and self-regulatory variables across levels of self-reported physical activity in MS

Variable	Group			F-statistic	p-value
	Insufficiently Active (n=32)	Moderately Active (n=11)	Active (n=25)		
EXSE	23.0 (20.5) †	35.9 (27.5) †	61.8 (19.8)	23.61	.001
PASR Overall	28.5 (9.8)*, †	37.8 (7.3)	39.9 (12.4)	8.93	.001
PASR SM	5.2 (2.1)*, †	7.5 (0.8)	7.1 (2.3)	8.67	.001
PASR GS	5.0 (2.1)	6.5 (2.0)	6.3 (2.6)	3.07	.053
PASR ESS	4.0 (2.3)	4.9 (2.1)	4.7 (2.3)	1.02	.367
PASR R	6.5 (2.3)	7.5 (1.3)	7.6 (1.9)	2.69	.076
PASR TM	4.3 (2.1) †	5.7 (2.3)	6.6 (2.6)	6.68	.001
PASR RP	3.7 (1.8)*, †	5.6 (2.8)	6.3 (2.4)	10.61	.001

Table 2: Correlations among physical activity, self-efficacy, and self-regulatory variables in MS

Variable	1	2	3	4	5	6	7	8
1. GLTEQ	---							
2. EXSE	.69(.70)*	---						
3. PASR Overall	.43(.47)*	.50(.50)*	---					
4. PASR SM	.45(.53)*	.34(.41)*	.72(.74)*	---				
5. PASR GS	.27(.30)*	.32(.37)*	.76(.78)*	.69(.73)*	---			
6. PASR ESS	.13(.18)	.17(.18)	.65(.64)*	.35(.36)*	.51(.48)*	---		
7. PASR R	.30(.36)*	.36(.35)*	.79(.80)*	.66(.69)*	.69(.74)*	.45(.44)*	---	
8. PASR TM	.41(.41)*	.38(.37)*	.84(.83)*	.54(.58)*	.61(.60)*	.62(.62)*	.61(.62)*	---
9. PASR RP	.53(.54)*	.52(.53)*	.83(.83)*	.58(.60)*	.58(.59)*	.54(.55)*	.62(.63)*	.79(.79)*

Figure 1: Summary of regression analysis for self-regulatory strategies predicting self-reported physical activity in persons with MS

Variables	B	SE B	β
PASR SM	3.65	1.71	.33*
PASR GS	-1.32	1.74	-.13
PASR ESS	-2.31	1.47	-.21
PASR R	-1.50	1.89	-.13
PASR TM	1.14	1.80	.11
PASR RP	5.01	1.74	.51*

Variable	B	SE B	β
Step 1			
PASR Overall	0.90	0.24	.43*
Step 2			
PASR Overall	0.27	0.22	.13
EXSE	0.56	0.10	.61*

Variable	B	SE B	β
Step 1			
PASR SM	2.32	1.40	.21
PASR RP	3.99	1.26	.40*
Step 2			
PASR SM	2.00	1.18	.18
PASR RP	1.39	1.17	.14
EXSE	0.49	0.09	.54*

Note. GLTEQ, Godin Leisure-Time Exercise Questionnaire; EXSE, exercise self-efficacy scale; PASR, Physical Activity Self-Regulation Scale; PASR SM, Self-monitoring; PASR GS, Goal Setting; PASR ESS, Eliciting Social Support; PASR R, Reinforcement; PASR TM, Time Management; PASR RP, Relapse Prevention.

Results (Cont.)

GLTEQ scores were positively and significantly associated with overall self-regulation (r=0.314), self-monitoring (r=0.306), reinforcement (r=0.239), time management (r=0.291), and relapse prevention (r=0.420) PASR-12 scores. Relapse prevention and self-monitoring were independent predictors of physical activity behavior (B = 6.381; SE B = 2.536; β = 0.492 and B = 3.65; SE B = 1.71; β = 0.33, respectively), and explained a significant amount of variance in physical activity behavior that was accounted for by EXSE.

Conclusion

Our results indicate that self-regulatory strategies, particularly relapse prevention, may be important determinants of physical activity behavior that can inform the design of future behavioral interventions in MS.

Future Research Directions

These findings should be considered when designing, refining, and optimizing behavioral interventions that target physical activity behavior change in persons with MS. Such behavioral interventions might target self-regulatory strategies, particularly relapse preventions for increasing self-efficacy, as an approach for changing physical activity participation in MS.