



The Energy Management Program in support of Restoration and Renewal for Persons with MS (EMPIRE²): An Initial Evaluation



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Background/Rationale

- Fatigue, the most common MS symptom, impacts daily function¹
- Cognitive behavioral therapy & self-management techniques are effectively manage MS fatigue^{2,3}
- There is no readily available program of managing MS fatigue
- EMPIRE²-MS was developed to address this gap

Research Questions

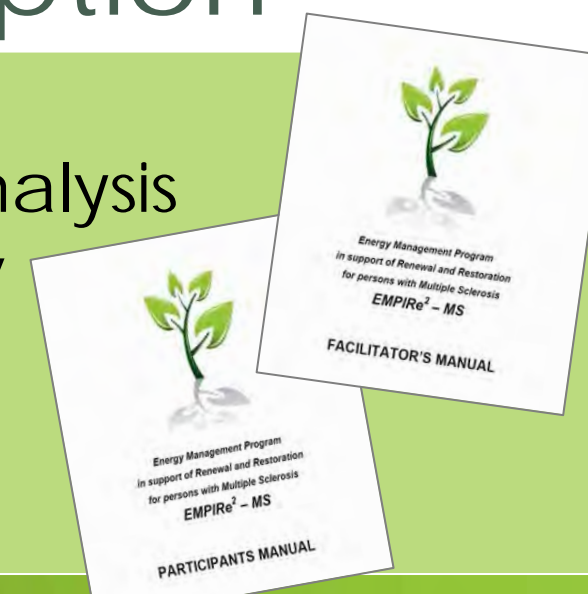
- Q1. What are the EMPIRE² – MS participant fatigue characteristics?
- Q2. What is the EMPIRE² – MS participant fatigue experiences?
- Q3. What is the participant experience related to the EMPIRE² – MS?
- Q4. Do the the fatigue items of the CFAB-MS⁷ have internal reliability?

Methods

- ❖ Participants: 26 persons with definite MS
- ❖ Intervention: All completed the EMPIRE²-MS program from 2015-2017
- ❖ Protocol:
 - Measures
 - Pre-program (week 0)
 - Comprehensive Fatigue Assessment Battery for Persons with MS (CFAB-MS)⁷
 - Patient Health Questionnaire (PHQ-9)⁴
 - Fatigue Severity Scale (FSS)¹
 - Self-Efficacy for Performing Energy Conservation Strategies Assessment (SEPECSA)⁵
 - Post-program (Week 5):
 - Program Evaluation Tool
 - Pre & Post program – measures ii, iii, iv described above
 - Analysis
 - Q1 & Q2: descriptive statistics
 - Q3: Text data content analysis
 - Q4: Cronbach's alpha for each subscale

EMPIRE² Program Description

- Session 1: Foundations for Energy Management
- Session 2: 4 Pillars of Problem Solving & activity analysis
- Session 3: Strategies to Bolster & Conserve Energy
- Session 4: Peer Partner Collaboration
 - Critique & debate concepts
- Session 5: Lifestyle & Health Issues



Preliminary Results

Participants Demographics				Medical History			
		Mean	SD			Mean	SD
Age		50.6	10.6	Years since diagnosis		11.7	9.4
				Years since symptoms emerged		15.3	8.8
		N	%			N	%
Sex	Male	7	26.9	Type of MS	Relapse-Remitting	15	57.7
	Female	16	61.5		Secondary Progressive	4	15.4
Marital status	Married /Common-Law	10	38.5		Primary Progressive	2	7.7
	Divorced / Separated	5	19.2		Progressive Relapsing	1	3.8
	Single	7	26.9		None	5	19.2
Type of employment	Paid Work	6	23.1	Other health conditions/illnesses	Thyroid Problems	3	11.5
	Volunteer	6	23.1		Breathing Problems	4	15.4
	Retired	4	15.4		Joint Problems	5	19.2
	Unemployed	2	7.7		Anemia/Low Iron	5	19.2
	Taking Care of family member or household	1	3.8		Headache	8	30.8
	Part Time Student	1	3.8		Stroke	2	7.7
						Stomach Problems	6
					Infection	2	7.7
					Diabetes	1	3.8
					Cancer	0	0
				Heart Disease	1	3.8	

Q1 response: Characteristics of Fatigue

		N	%
How long have you experienced fatigue problems?	< 6 weeks	1	3.8
	> 6 months	20	76.9
	I don't know	1	3.8
How frequently do you experience fatigue?	Daily	10	18.5
	Most days	8	30.8
	Occasionally	4	15.4
	Rarely	1	3.8
When does you fatigue usually begin?	When I get up	10	38.5
	Late morning	2	7.7
	Early afternoon	4	15.4
	Late afternoon	1	3.8
	Early evening	3	11.5
	I don't know	2	7.7
When is your fatigue usually at its worst?	When I get up	5	22.7
	Late morning	0	0
	Early afternoon	4	18.2
	Late afternoon	5	22.7
	Early evening	7	31.8
	I don't know	1	4.5
Does your fatigue go up & down through the day?	Yes	20	76.9
	No	1	3.8
	I don't know	2	7.7
How long do you feel fatigued during a usual day?	< 3 hours	7	26.9
	3-6 hours	7	26.9
	6-12 hours	4	15.4
	12-24 hours	4	15.4
	I don't know	1	3.8

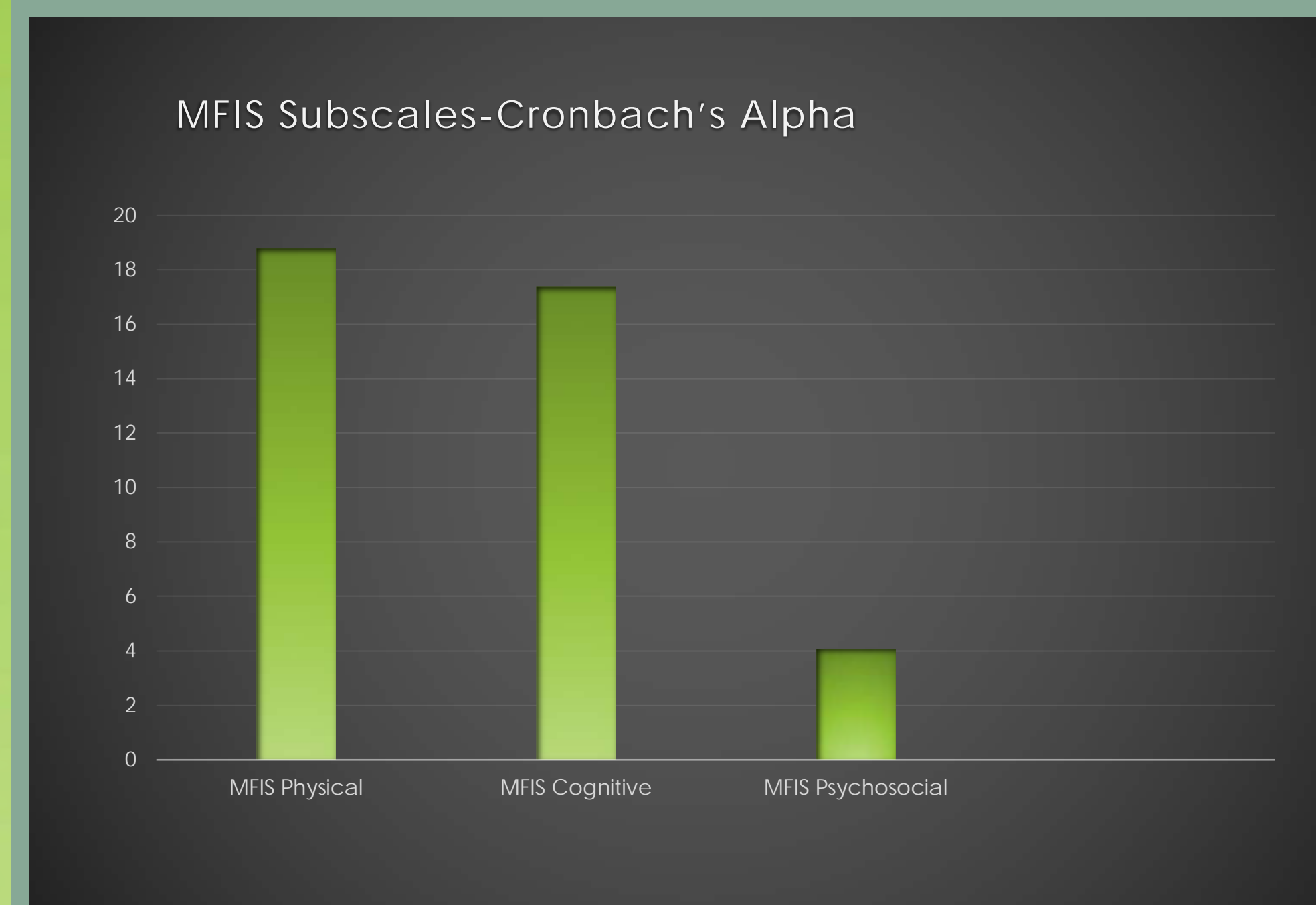
Q2 response: Fatigue Experiences

Subscale	#	CFAB items (0 no prob. – 4 worst prob.)	Mean	SD
Cognitive	30	Because of my fatigue...		
		30 alertness	1.64	.79
		31 paying attention for a long period	1.83	.94
		32 think clearly	1.70	.98
		33 forgetfulness	1.87	1.01
		37 decision making	1.61	1.03
		38 motivation to do anything req'ing thinking	1.48	1.04
		39 finishing tasks that require thinking is	1.95	1.05
		34 organizing my thoughts when I am doing things at home or at work	1.83	1.03
		35 slowed thinking	1.61	.94
	36 concentration	1.86	1.08	
		Subscale total	1.74	8.25
Psycho-social	28	motivation to participate in social activities	2.22	.90
	29	ability to do things away from home	1.87	.87
		Subscale total	2.05	1.56
Physical	40	clumsiness and incoordination	2.09	.90
	42	I pacing myself in my physical activities	1.91	.95
	43	motivation to do anything that requires physical effort	1.91	.99
	44	maintaining physical effort for long periods	2.61	.94
	45	muscle weakness	2.17	.83
	46	physical discomfort	1.78	1.13
	41	completing tasks requiring physical effort	2.35	.94
	47	I have limited my physical activities	1.95	1.61
48	I need to rest more or for longer periods	2.00	1.05	
		Subscale total	2.09	6.81

Q3 response: Experience with EMPIRE²-MS

Characteristic	% Satisfaction	Comments
4 sessions - just right	56	"...it was really good for identifying the factors contributing to fatigue...but more helpful ... sessions specific for practicing strategies"
2-hr sessions - just right	81	"Maybe a 1.5 hour session would have been better"
2 leaders - good balance	88	"Very balanced and good continuity"
Group format - good way to do program	100	
Written materials - useful, clear, organized	88	"excellent, I'll be going over it again" "useful, but not well-matched to leaders manuals"
Homework tasks, handy tips & strategies - useful & applicable	94	
Participating gave me confidence & a feeling of control to manage fatigue	73	"Made me aware, I now have some tools that I can implement in my lifestyle." "I have made a major change in that I know take full days for rest."
Favorite aspect of the program was the smaller group format & intimate setting	77	"enjoyed listening and talking with others who have MS"
No suggestions to change the fatigue management program	62	"I wouldn't change anything..."
Suggestions for changes	38	"more problem solving approaches" "more time to interact with others...and their fatigue and MS history..." "emphasize pre-reading material"

Q4 response: Internal reliability of fatigue items



The internal reliability for each subscale of the modified MFIS was examined using Cronbach's Alpha.

- The Cronbach's alpha for each subscale was as follows:
- cognitive subscale was .953
 - physical subscale was .915
 - psychosocial subscale was .717

As all of these values were above .70 suggests that there is good internal reliability⁶.

Discussion

Fatigue Characteristics:

- Most participants experienced fatigue daily or almost daily for longer than 6 months.
- Typically, fatigue begins in the morning progressing through the day, getting worse by afternoon/evening and fluctuating through the day.

Fatigue Experience:

- For this cohort, overall, fatigue seems to have the greatest impact on physical functioning and psychosocial activity.

Experience with the EMPIRE²-MS Program:

- Comments suggested that participants enjoyed the program and felt it was useful in managing their fatigue
- Comments suggest longer sessions could be useful for practicing and improving skills learned in the program

Internal Reliability

- The Cronbach's alpha showed that the CFAB-MS subscales that participants answered was consistent with the original MFIS⁷.

Limitations

- Small sample size
- Sample may not be representative of typical MS population - Participants were older & generally higher level of disability

Future Directions

- Longer follow up may allow participants more time to practice the skills & gain more confidence in fatigue management strategies
- Include clinician data to study application in clinical settings.
- Allow for program to be individualized to meet person's unique needs

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