

## **Association of Wellness practices in MS patients using self reported disability scores and MS characteristics**

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## **Wellness**

- Wellness is defined as “the quality or state of being healthy” and may be enhanced and achieved by various mechanisms including nutritional practices, stress management, exercise and complementary alternative medicine practices.

## Wellness and the MS patient

- MS patients have been shown to have a higher level of neurologic disability associated with comorbidities therefore seeking wellness and lessening consequences of comorbidities is an optimal goal for MS patients.
- Multiple Sclerosis (MS) patients seek optimal health and wellness.
- Due to the chronic nature of MS, patients are seeking opportunities to improve their overall condition.
- MS symptoms and disease activity may lessen with stress management, exercise, healthy diet and Vitamin D supplementation.

## Objective

- Our study intends to find a relationship between wellness practices, self-reported disability, disease duration, age, and gender in MS patients.
- We hypothesize that MS patients with longer disease duration and high self-reported disability scores tend to utilize a wider variety of wellness practices.

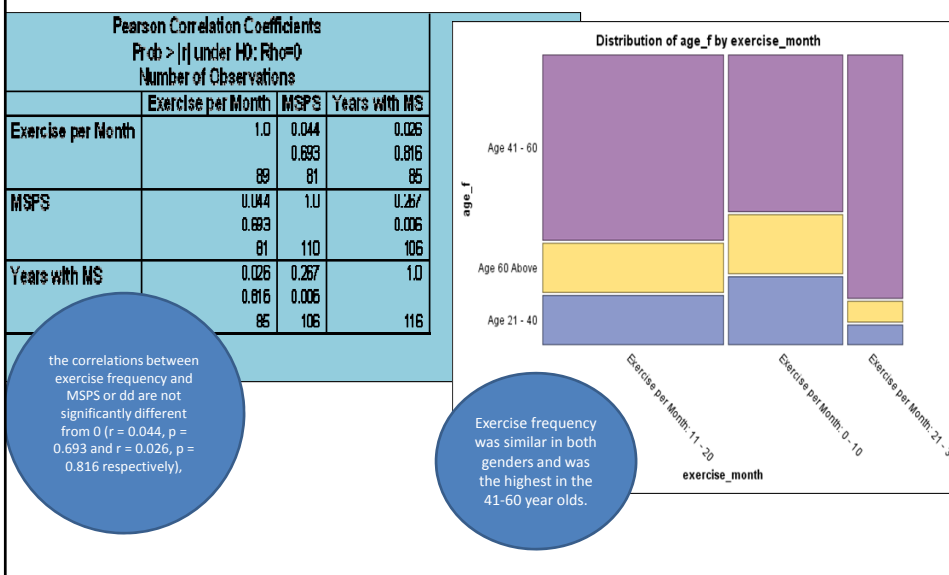
## Methods and Materials

- 122 clinically definite MS patients answered a survey at an office visit or per Email regarding their wellness practices.
- The variables of interest in the survey included: exercise frequency, nutritional and stress management practices.
- Patients answer questions regarding health status measures at each clinical visit through an interactive data collection platform, this includes the Multiple Sclerosis Performance Scale (MSPS).
- Charts reviewed for: MSPS score and disease duration.
- The MSPS score is a self-reported disability scale that asks questions in 11 functional scales: vision, fatigue, cognition, bladder/bowel, sensory, spasticity, pain, depression and tremor, lower scores indicate less disability
- The variables of interest were then compared to age, gender, MSPS score, and disease duration
- Statistical analysis was conducted on the data

## Results

Table I: Descriptive Statistics		
Gender, N = 121 (Frequency, Percent)	Female	97, 80.17%
	Male	24, 19.83%
Age, N = 122, (Mean ± SD, Median, [Min, Max])		51.23 ± 10.34, 52, [21, 80]
MSPS, N=110, (Mean ± SD, Median, [Min, Max])		11.93 ± 7.50, 11.5, [0, 36]
Years with MS, N=110, (Mean ± SD, Median, [Min, Max])		11.88 ± 8.68, 11, [1, 43]

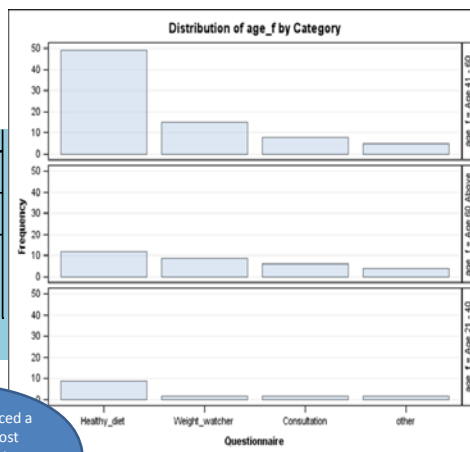
## Exercise Frequency Data



# Nutritional Practices

Nutrition finished	Frequency	Percent	Cumulative Frequency
No	33	27.05	33
Yes	89	72.95	122

Questionnaires	N	Variable	N	Mean	Std Dev	Median	Min	Max
Healthy diet	70	MSPS	62	13.129	7.545	12	0	29
		Years	66	11.970	9.013	11	1	43
Weight watcher	26	MSPS	22	12.645	7.469	10.50	4	29
		Years	24	14.167	10.643	11	2	43
Consultation	16	MSPS	14	14.429	8.318	13	2	29
		Years	15	15.467	9.195	17	1	30
other	11	MSPS	9	12	6.245	11	4	24
		Years	10	12.30	8.111	11	1	23

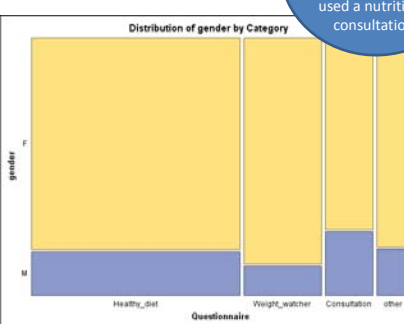
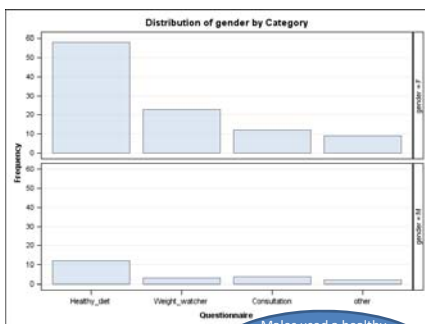


Nutritional practices were tried in 72% of the respondents; most common was healthy diet and decreased with younger age.

Age 21-40 practiced a healthy diet most commonly yet frequency was greatest in the 41-60

# Nutritional Practices II

- Plots of nutrient related questionnaire by controlling gender



Women used a wider variety of nutritional practices; men most commonly used a nutritional consultation.

Males used a healthy diet more often in the middle age range, 41-60

# Supplements

Have you tried Over the Counter Supplements for your MS symptoms?			
Supplement	Frequency	Percent	Cumulative Frequency
No	74	60.66	74
Yes	48	39.34	122

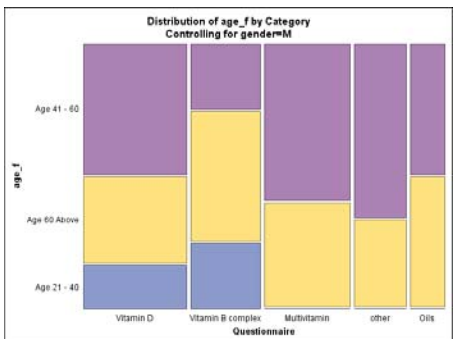
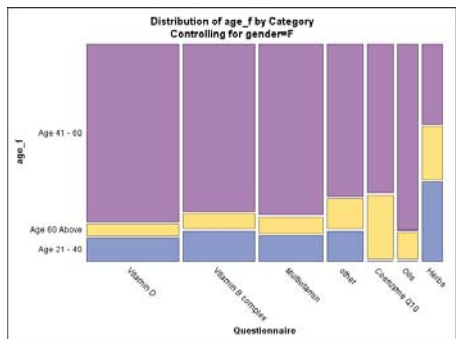
Vitamin D, B complex and MVI were most often used in middle age and higher female use.

A supplement was tried in 39% of the respondents, similar in male and female and was not associated with MS/MS

Questionnaire	N Obs	Variable	N	Mean	Std Dev	Median	Minimum	Maximum
Vitamin D	42	MSPS	37	13.595	7.014	14	0	27
		Years	40	12	9.727	9.50	1	33
Vitamin B complex	32	MSPS	27	13.296	6.444	14	1	27
		Years	30	11.600	9.212	9.500	1	33
Multivitamin	30	MSPS	27	15.370	7.061	16	1	27
		Years	29	12.655	9.919	11	1	33
other	17	MSPS	17	12.824	8.164	12	1	26
		Years	17	9.294	9.040	7	1	33
Oils	10	MSPS	10	16.100	6.641	16.50	5	25
		Years	9	21.667	9.899	24	2	33
Coenzyme Q10	10	MSPS	8	10.125	6.643	8.50	1	22
		Years	8	11.125	10.548	11	1	33
Herbs	8	MSPS	6	17	6.261	15	11	27
		Years	6	16	14.227	13.50	1	33

# Supplements II

- Plots of supplements related questionnaire by controlling both gender and age

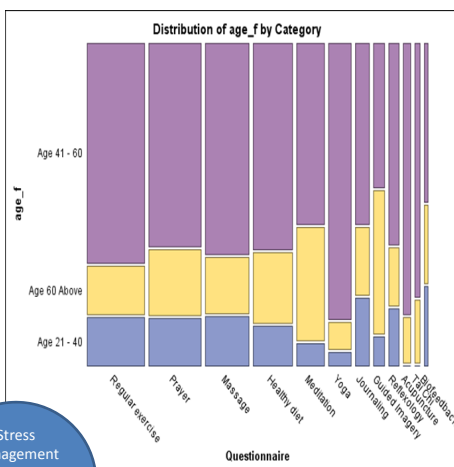
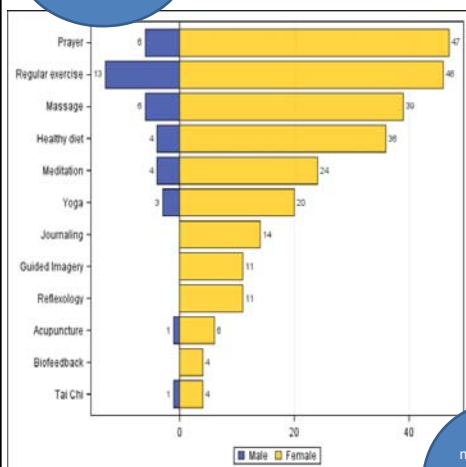


## Stress Management Tools

Questionnaire	N Obs	Variable	N	Mean	Std Dev	Median	Min	Max
Regular exercise	59	MSPS	52	10.942	7.495	10	0	29
		Years	57	11.912	9.007	10	1	43
Prayer	53	MSPS	46	13.130	7.736	12	1	29
		Years	51	11.725	8.848	9	1	43
Massage	45	MSPS	41	12.390	6.484	12	1	27
		Years	42	12.762	8.817	11.50	2	33
Healthy diet	40	MSPS	34	12.824	7.209	12.50	1	29
		Years	36	13.972	10.795	11	1	43
Meditation	28	MSPS	25	14.480	7.495	13	3	29
		Years	26	17.115	11.050	17	2	43
Yoga	23	MSPS	22	10.682	6.357	11	1	25
		Years	21	13.429	9.490	13	2	35
Journaling	14	MSPS	14	15.071	6.615	15	5	27
		Years	13	16.538	8.151	14	2	29
Reflexology	11	MSPS	11	11.091	5.856	12	2	20
		Years	10	16.800	10.009	16.50	2	33
Guided Imagery	11	MSPS	10	15	7.288	15.50	3	27
		Years	10	12.40	9.407	11.50	2	33
Acupuncture	7	MSPS	6	10.667	6.532	10.50	1	18
		Years	7	10.143	9.335	9	2	27
Tai Chi	5	MSPS	3	6.667	5.132	8	1	11
		Years	4	18.750	17.970	15	2	43
Biofeedback	4	MSPS	3	20.333	5.859	18	16	27
		Years	3	16	15.716	13	2	33

Males chose exercise as their top stress management choice

## Stress Management II



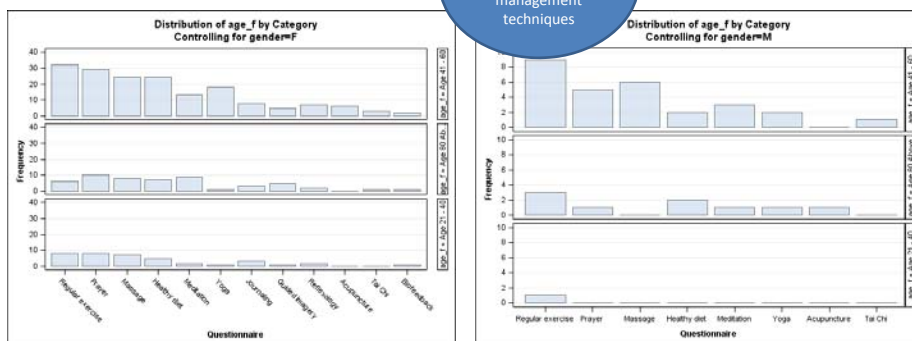
Stress management was used by 76%, and use increased with age

# Stress Management

Plots of stress related questionnaire by controlling both gender and age

Younger patients had less range of stress management techniques

As males age they use a wider variety of stress management techniques



## Conclusions

- Wellness practice use did not correlate with MSPS or disease duration, although a weak correlation between MSPS and disease duration was observed.
- Wellness practices variability increased with age.
- The majority of patients use nutrition, stress management and exercise as wellness tools.
- MS caregivers should be aware of MS patients using wellness practices that is unpredictable by age, self-reports of disability or disease duration.
- We may serve our patients better by recommending wellness practices including exercise and stress management at younger ages and in male patients as these populations used wellness practices less frequently.
- This study is limited by small sample size.