Frederick W. Foley, Ph.D.

• Professor of Psychology, Ferkauf Graduate School of Psychology, Yeshiva University, Bronx, NY
• Director of Neuropsychology and Psychosocial Research, Multiple Sclerosis Comprehensive Care Center, Holy Name Hospital, Teaneck, NJ
Epidemiology of Sexual Dysfunction in the Adult US Population

• 52% men [Massachusetts Male Aging Study]
• 43% women & 31% men [National Health & Social Life Survey]
• Chronic physical illness, advancing age [> 40 years], various medications, lower education, cigarette smoking, alcohol abuse, depression & anxiety all contribute to increased risk

Most Men and Women Rate Sex as Important in Their Overall Life

![Chart showing percentage of respondents rating sex as extremely/very/moderately important (3-5)]

83% of men and 63% of women rate sex as extremely/very/moderately important (3-5).

*Based on a 5-point scale where 5 is extremely important and 1 is not at all important

### Importance of Sexuality to Quality of Life: American Association of Retired Persons

**Percentage Agreeing That Sex Is Important to Quality of Life**

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>45-59</td>
<td>70%</td>
<td>50%</td>
</tr>
<tr>
<td>60-74</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>75+</td>
<td>40%</td>
<td>20%</td>
</tr>
</tbody>
</table>

* N = 1384 men and women


### Epidemiology of SD in the US

- Multiple Sclerosis Intimacy and Sexuality Questionnaire
- Validated in Several Studies
  - Foley et al, (2013) Multiple Sclerosis Journal
  - Schairer et al, (2013) Multiple Sclerosis Journal
- Used as Primary Outcome Measure in One Randomized Clinical Trial in MS (to Date) and in One Other Study as Primary Outcome Measure
Primary Sexual Dysfunction

Occurs as a result of MS-related changes in the central nervous system that \textit{directly} impair sexual feelings and/or response.

Secondary Sexual Dysfunction

Occurs as MS-related physical changes or medical/pharmacological treatments that \textit{indirectly} affect sexual feelings and/or response.
Tertiary Sexual Dysfunction

Refers to the psychological, social, and cultural issues that interfere with sexual feelings and/or response

Frequency of Significant and Persistent Sexual Dysfunction (Foley et al, 2009)

- Total Sample (N= 5868)
  - 67.2% Endorsed Significant Sexual Dysfunction Over Last 6 Months (At Least One of 15 Symptoms That Interfered Almost Always or Always)
Top 5 Symptoms Men

1. Difficulty Getting/Keeping Satisfactory Erection – 52.1% (P)
2. Feeling Less Confident About My Sexuality Due to MS – 37.6% (T)
3. Less Intense or Pleasurable Orgasms – 36.5 % (P)
4. Takes Too Long To Orgasm/Climax – 35.8 % (P)
5. Less Feeling or Numbness in Genitals – 31.4 % (P)

Top 5 Symptoms Women

1. Takes Too Long to Orgasm/Climax – 39.9 % (P)
2. Less Intense or Pleasurable Orgasms/Climaxes – 36.2% (P)
3. Lack of Sexual Desire – 35.9% (P)
4. Inadequate Vaginal Wetness/Lubrication – 34.2%(P)
5. Less Feeling or Numbness in Genitals – 27.8% (P)
Comparing Men & Women on Sexual Dysfunction

<table>
<thead>
<tr>
<th>Scale</th>
<th>Sex</th>
<th>Mean</th>
<th>SE</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>F</td>
<td>34.5</td>
<td>.21</td>
<td>(1, 0.3 ns)</td>
<td>5315</td>
<td></td>
</tr>
<tr>
<td>MSISQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Score</td>
<td>M</td>
<td>34.7</td>
<td>.36</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ANOVA Modeling, controlling for Age & Disability, with Means Adjusted

Epidemiology of Sexual Dysfunction in MS

- 2001: McCabe et al: 20% free of Problems w/ Intimacy/Sexuality
- 2001: Zorzon et al: 2yr follow-up: Proportion of MS pts w/ SD same, but sxs. worse
- 1999: Zorzon et al: 73.1% MS vs 39.2% CD Controls vs 12.7% Healthy Matched Controls
- 1984: Valleroy & Kraft: 75% Men 56% Women
- 1984: Minderhoud et al: 74 % Women w/ MS vs 19% in Matched Controls
Rehabilitation of Sexual Dysfunction in Multiple Sclerosis

Frederick W. Foley, Ph.D., Nicholas LaRocca, Ph.D., Audrey Sorgen, Ph.D., Vance Zemon, Ph.D.


Objectives:
Test Efficacy of Structured Cognitive Behavioral Psychotherapy Intervention + Education To Rehabilitate Sexual Dysfunction, Marital Satisfaction & Marital Communication in PWMS & Their Sexual Partners
### Results, Marital Satisfaction

<table>
<thead>
<tr>
<th>Var</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>F</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT</td>
<td>43.6</td>
<td>44.1</td>
<td>53.8</td>
<td>20.2</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Pt</td>
<td>43.6</td>
<td>45.8</td>
<td>54.8</td>
<td>[no inter-</td>
<td>action]</td>
</tr>
<tr>
<td>S</td>
<td>43.6</td>
<td>42.4</td>
<td>52.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: MAT=Marital Adjustment Test, Pt=Person w/ MS, S=Spouse/Partner

### Results, Affective Communication

<table>
<thead>
<tr>
<th>Var</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>F</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>13.0</td>
<td>12.2</td>
<td>16.3</td>
<td>12.1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Pt</td>
<td>12.0</td>
<td>11.2</td>
<td>16.6</td>
<td>[no inter-</td>
<td>action]</td>
</tr>
<tr>
<td>S</td>
<td>14.0</td>
<td>13.3</td>
<td>16.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: AC=Affective Communication Subtest of the Marital Satisfaction Inventory, Pt=Person w/ MS, S=Spouse/Partner
### Results, Problem-Solving Communication

<table>
<thead>
<tr>
<th>Var</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>F</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC</td>
<td>15.7</td>
<td>16.8</td>
<td>22.1</td>
<td>21.4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Pt</td>
<td>13.9</td>
<td>14.9</td>
<td>20.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>17.6</td>
<td>18.6</td>
<td>23.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: PSC=Problem-Solving Communication Subtest of the Marital Satisfaction Inventory, Pt=Person w/ MS, S=Spouse/Partner

### Results, Sexual Satisfaction

<table>
<thead>
<tr>
<th>Var</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>F</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>12.9</td>
<td>13.2</td>
<td>16.2</td>
<td>7.1</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Pt</td>
<td>11.3</td>
<td>11.6</td>
<td>15.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>14.4</td>
<td>14.9</td>
<td>16.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: SS=Mean Sexual Satisfaction Subtest Scores of the Marital Satisfaction Inventory, Pt=Person w/ MS, S=Spouse/Partner. SS Scores were reversed to indicate satisfaction. Higher scores=higher satisfaction
Christopherson, J.M., Moore, K., Foley, F.W., Warren, K.G

A comparison of written materials vs. materials and counseling for women with sexual dysfunction and multiple sclerosis.


- 62 women w/ FSD randomized into 2 groups
- Group 1 - educational materials + referrals
- Group 2 - above + 3 counseling sessions

Results

- Baseline EDSS + MSISQ scores similar
- Repeated measures ANOVA found both groups had significant improvements in Primary Sexual Dysfunction [F(1) = 14.79, p < .001].
- No improvement in Secondary or Tertiary
- Trend towards interaction effect (in favor of group 2) for Tertiary [F(1) =2.88, p =.096]
Primary Sexual Dysfunction Examples

- Decreased or absent libido
- Altered genital sensations
- Decreased frequency/intensity of orgasms
- Erectile dysfunction
- Decreased vaginal lubrication and clitoral engorgement
- Decreased vaginal muscle tone

Secondary Sexual Dysfunction Examples

- Bladder or bowel dysfunction
- Fatigue
- Non-genital sensory paresthesias
- Spasticity
- Decreased non-genital muscle tone
- Cognitive impairments
- Tremor
- Pain
“I’ll bet you they’re not even real!”
Tertiary Sexual Dysfunction

- Changes in self-image or body image
- Demoralization and grief
- Clinical depression
- Performance anxiety
- Family and social role changes: role conflict
- Internalized cultural values that create sexuality-inhibiting expectations and judgements
Sex

How do we talk about it?

With whom can we talk about it?

Poll of 500 US adults aged >25 years; percentages do not add up due to rounding
Has your doctor asked whether you have sexual difficulties (within the last 3 years)?

Note: Scale Ends at 50 percent


Physician Questioning Increases Patient Reporting of Sexual Dysfunction

*Patients receiving SSRI treatment (N=308)

Rehabilitation of Sexual Function

- Multi-disciplinary assessment of primary, secondary, tertiary factors
- Education and empowerment: transition to active problem-solving
- Medical symptom management
- Communications skills training: between partners and between patient and medical team
- Counseling that targets intimacy and sexuality

Diseases/conditions that cause sexual dysfunction besides MS:

- Diabetes mellitus
- Cardiovascular Disease
- Neurologic Disease
- Vascular Disease:
  - Hypertension
  - Sleep Apnea
- Hyper/Hypo-thyroidism
- Hyperprolactinoma

- ETOH, DRUG, TOBACCO ABUSE
- Medications:
  - Trauma
  - Cushing's Syndrome
  - Peyronie's Disease
  - Anxiety / Depression / Psychoses
- Radical Surgery:
  - Pelvic, Prostate, Colon,
Assessment of Sexual Function in MS

- Comprehensive: primary, secondary, tertiary
- Medical and neurological exams, records
- Evaluation of current medication regimens
- Interviews: sexual history, psychosocial and family history, couples interview
- Self-report instruments: MSISQ
- Specialized medical tests: penile doppler sonography, nocturnal penile tumescence, injecting prostaglandin in corpus cavernosum

Comprehensive Laboratory Assessment

Men and Women
- Thyroid
- Testosterone (free and total)
- DHEA/ DHEAS
- Prolactin
- Complete blood count
- Comprehensive Metabolic
- Glycosylated hemoglobin
- Lipid Profile
- Certain vit. & minerals

Men
- Prostate Specific Antigen (PSA)

Women
- Estradiol
- Progesterone
- FSH
- Sex Hormone Binding Globulin (SHBG)
Multiple Sclerosis Intimacy and Sexuality Questionnaire-19

- 19-Item Total $\alpha = .91$
- Primary Items (5); $\alpha = .82$
- Secondary Items (9); $\alpha = .85$
- Tertiary Items (5); $\alpha = .87$
- Concurrent Validity: Marital Satisfaction, Sexual Satisfaction, Affective Communication, Problem-Solving Communication
- Sensitivity $\triangleright$ MRD Sexual Fx. Interview
  [Sanders, Foley, LaRocca & Zemon (2000). Sexuality & Disability, 18, 1, 3-26]
Medical Management of Erectile Dysfunction: Oral Medications

- Phosphodiesterase (PDE-5) Inhibitors: [e.g. Sildenafil Citrate/Viagra, Tadalafil/Cialis, Vardenafil/Levitra]: FDA approved
- Non-selective dopamine agonists [apomorphine subcutaneous: approved for Parkinson’s; SL version in testing] Not approved for SD
- Central alpha-2 antagonists [yohimbine, delequamine] Not approved for SD
- Peripheral alpha-1/alpha-2 blockers [phentolamine] Not approved for SD
- D2 selective dopamine agonists [experimental]

ED Therapy: Vacuum Erec-Aid
ED: MUSE® Urethral Suppository

ED: Intracavernosal PGE-1 Injection- Caverject® / Edex®
Medical Management of Erectile Dysfunction

- Vacuum Erection Device
- Intracavernous Injection Therapy [alprostadil or Prostin VR, papaverine]
- Intraurethral suppositories [Muse]
- Topical medication [Alprox-TD or Topiglan]
- Penile Prostheses
- Sexual Aids: vibrators, etc.
- Education, Counseling, Education.....
Primary Sexual Dysfunction and Women: Pharmacology

• Bremelanotide [Palatin] (formerly PT-141) is a melanocortin agonist administered via subcutaneous injection. Phase 2b trial led to increase in libido and sex satis events. Planning Phase 3 trials

• Flibanserin [Sprout Pharma]: tested in Phase III trials on 5000 + women in Europe & US: significantly increases libido: works by blocking release of serotonin, which increases dopaminergic transmission. FDA requires more safety studies (2013 ruling)

• ORL101 [Orlibid]: Increases melatonin in CNS: In trials in Europe: May increase libido for 2+hours.

Primary Sexual Dysfunction and Women: Pharmacology

• PDE-5 inhibitors [Viagra, Cialis, Levitra ?]

• Intrinsa [Noven]: testosterone patch sold in Europe for women w/ hysterectomy: demonstrated sig. improved libido [on hold in US for safety concerns]

• LibiGel [BioSante]: testosterone gel patch

• Other medications [Phenytoin, Carbamezepine]
Potentially Sex Positive Pharmaceuticals—Not FDA-Approved

[Slide Courtesy of Barbara Bartlik, MD]

Oral
- Trazodone (Desyrel)
- Buspirone (Buspar)
- Bupropion (Wellbutrin)
- Ropinirole (Requip)
- Pramipexole (Mirapax)
- Stimulants (Ritalin, Dexedrine)
- Selegiline (Deprenyl, Emsam)

Topicals (for Women)
- PGE 1 (spray or gel)
- Muse pellet
- Sildenafil (Viagra)
- Niacin
- Ergotamine
- L-Arginine
- Lubricants w/ heat/cold sensation additives

Nasal Spray or Sublingual
- Oxytocin 10 IU once or twice over a one hour time span

Primary Sexual Dysfunction and Women: Non-Pharm Approaches

- Eros CTD: Clitoral Vacuum Pump: Increases arousal [FDA approved]
- Vibrators, sexual aids
- Water soluble lubricants
- Kegel (Pelvic Floor) exercises and/or biofeedback
- Body mapping assessment: new approaches to touch and arousal
- Emphasis on intimacy and communication
ERSOS  (Vacuum Therapy for FSD)

- The NuGyn™ Eros Therapy device is the only available, clinically proven product cleared by the FDA for women who suffer from FSD of an organic nature, specifically arousal and orgasmic disorders.
- The Eros Therapy device is a small, handheld medical device that uses a gentle vacuum to improve your sexual responses by increasing blood flow to the clitoris and external genitalia.

- The soft CAREss cup is placed over the clitoris. When the Eros Therapy device is turned on a gentle vacuum is created, increasing blood flow to the genital area. This increase in blood flow results in:
  - Increased clitoral and genital sensitivity
  - Improved lubrication
  - Improved ability to achieve orgasm
  - Increased overall sexual satisfaction

Vibratory Therapy in FSD/ED
Fantasy!


Linear Model of Female Sexual Response Cycle


Intimacy-Based Model of Female Sexual Response Cycle

- Emotional intimacy
- Emotional and physical satisfaction
- Arousal and sexual desire
- Spontaneous sexual drive
- Sexual stimuli
- Sexual arousal
- Biological
- Psychological

Intimacy-Based Sexuality

- Erotic
- Sensual
- Special Person

Basic Treatment Strategies for Female Sexual Dysfunction

- **Provide education**
  - Provide information and education (e.g., about normal anatomy, sexual function, normal changes of aging, pregnancy, menopause);
  - Provide booklets, encourage reading;
  - Discuss sexual issues when a medical condition is diagnosed, a new medication is started, and during pre- and postoperative periods;
  - Give permission for sexual experimentation.

- **Enhance stimulation and eliminate routine**
  - Encourage use of erotic materials (videos, books);
  - Suggest masturbation to maximize familiarity with pleasurable sensations;
  - Encourage communication during sexual activity;
  - Recommend use of vibrators;
  - Discuss varying positions, times of day or places;
  - Suggest making a “date” for sexual activity.

- **Provide distraction techniques**
  - Encourage erotic or non-erotic fantasy;
  - Recommend pelvic muscle contraction and relaxation (similar to Kegel exercise);
  - Recommend use of background music, videos or television.

- **Encourage non-coital behaviors**
  - Recommend sensual massage, sensate-focus exercises (sensual massage with no involvement of sexual areas, where one partner provides the massage and the receiving partner provides feedback as to what feels good, aimed to promote comfort and communication between partners);
  - Oral or non-coital stimulation, with or without orgasm.

- **Minimize dyspareunia**
  - Superficial: female astride for control of penetration, topical lidocaine, warm baths before intercourse, biofeedback.
  - Vaginal: same as for superficial dyspareunia but with the addition of lubricants.
  - Deep: position changes so that force is away from pain and deep thrusts are minimized, nonsteroidal anti-inflammatory drugs before intercourse.
How to Talk About Sex

• Agree on *when* and *where* it’s most comfortable to talk about sex
• Use books, handouts, videos to initiate discussion
• Do not accuse, criticize, or blame partner: use “I feel…I would like…” language instead of “You don’t…” language
• Expect that some sexual requests will be rejected. Remember this does not mean rejection of *you as a person*. 
How to Talk About Sex (cont.)

• Be aware that sexual feelings and preferences change, especially as MS symptoms fluctuate
• Use non-verbal communication assertively [take his/her hand and show how you like to be touched]
• Do not expect your partner to do anything unless you explicitly ask them or show them [no mind reading]
• Do not expect perfection

Coping with Tertiary Sexual Dysfunction

• Re-education of interfering cultural attitudes [goal-oriented sex, role conflict, intimacy vs. sex etc.]
• Body mapping for body image enhancement
• Couples education: enhance sensual, erotic, special person aspects to relationship
• Education on how to talk about sex
Coping with Tertiary Sexual Dysfunction (cont.)

- Stress-management training: managing anxiety
- Couples counseling: enhance adaptation to MS, improve empathy and understanding of each other and improve communication
- Individual psychotherapy: adapting one’s sense of self
- Psychopharmacological management
- Anger management training