Lyme Borreliosis: Late Stage Neuropsychiatric and Other Clinical Findings and Clinical Assessment

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Disclosure Statement

Robert Bransfield, MD, DLFAPA, PC

- Patients pay me money in return for trying to help them.
- Most of my income is paid directly from patients
- No Lyme, psychoimmunology or infectious disease financial interests.
- No research grants or patents dependent upon a disease definition.
- I have been an expert witness in cases involving Lyme disease.

Differentiating Somatopsychic, Psychosomatic, Multisystem Illness and Medical Uncertainty

Bransfield RC, Friedman KJ.

Healthcare (Basel). 2019 Oct 8;7(4). pii: E114.
doi: 10.3390/healthcare7040114

Term	DSM-5 Diagnosis	ICD-10 Diagnosis	ICD-11 Diagnosis
All in your head	No	No	No
Somatic symptom disorder	Yes	Yes	No
Somatoform disorder	No	No	No
Medically unexplained symptoms	No	No	No
Functional neurological symptom disorder	Yes	Yes	No
Conversion disorder	No	Yes	No
Illness anxiety disorder	Yes	No	Yes
Factitious disorder imposed upon another (Munchausen's by proxy)	Yes	Yes	Yes
Functional disorders	No	Yes	No
Psychogenic disorders	No	Yes	No
Compensation neurosis	No	No	No
Psychogenic seizures	No	Yes	Yes
Psychogenic pain	No	Yes	No
Psychogenic fatigue	No	No	No
Delusional parasitosis	No	Yes	Yes
Subjective vs. Objective	No	No	No
Non-specific or vague symptoms	No	No	No
Bodily distress disorder	No	No	Yes

Conclusion

- We must recognize there is always some degree of medical uncertainty with any condition. Not everything is well understood or categorized. Complex diseases require complex explanations, and there needs to be recognition of varying degrees of medical uncertainty. Everything is caused by something. Nothing is caused by nothing. When clinical findings are puzzling, the ethical approach is to continue attempting to search for its cause.

Conclusion II

- Medically unexplained symptoms, somatoform disorder, and compensation neurosis are outdated. Terms such as *subjective*, *vague*, and *non-specific* are used inaccurately. *Conversion disorders, functional disorders, psychogenic illness, Munchausen's by proxy, somatic symptom disorder, psychogenic seizures, psychogenic pain, psychogenic fatigue, and delusional parasitosis* are over-diagnosed. *Bodily distress disorder* is *Bodily distress syndrome* is dependent upon "medically unexplained symptoms" and is scientifically unsupported.

Conclusion III

- To properly understand the mind/body connection, a knowledge of general medicine, psychiatry, and the systems which link the soma and the brain are required. No one has a complete knowledge of all fields of medicine. We must have compassion and humility and recognize that not all diseases have been discovered or properly understood, and be aware that much remains to be learned about the brain/body interaction.

Lyme Borreliosis: Late Stage Neuropsychiatric and Other Clinical Findings and Clinical Assessment

- Many late-stage chronic Lyme disease clinical findings are neuropsychiatric. A total clinical assessment is critical in diagnosis, especially since controversy surrounds the reliability of immune-based testing. The clinical findings of one hundred Lyme disease patients with chronic neuropsychiatric symptoms were entered into a database. The prevalence of each clinical finding pre-infection and post-infection were compared and calculated within the 95% confidence interval. Patients had minimal symptoms pre-infection, but a high post-infection prevalence of a broad spectrum of acquired multisystem symptoms.

Clinical Findings
Pre-infection, Post-infection, 95% CI

Sustained attention	**7%**	**(2% - 12%)**	**84%**	**(77% - 91%)**
Allocation of attention	6%	(1% - 11%)	66%	(57% - 75%)
Distracted by frustration	7%	(2% - 12%)	79%	(71% - 87%)
Hypersensitivity to sound	3%	(0% - 6%)	66%	(57% - 75%)
Hypersensitivity to light	2%	(0% - 5%)	63%	(54% - 72%)
Hypersensitivity to touch	2%	(0% - 5%)	41%	(31% - 51%)
Hypersensitivity to smell	5%	(1% - 9%)	36%	(27% - 45%)
Sensory overload	No data			

Memory	Pre-infection		Post-infection	
Working memory	3%	(0% - 6%)	78%	(70% - 86%)
Working spatial memory	1%	(0% - 3%)	46%	(36% - 56%)
Recent memory	5%	(1% - 9%)	77%	(69% - 85%)
Remote memory	4%	(0% - 8%)	35%	(26% - 44%)
Memory retrieval				
Words	3%	(0% - 6%)	70%	(61% - 79%)
Numbers	3%	(0% - 6%)	52%	(42% - 62%)
Names	6%	(1% - 11%)	68%	(59% - 77%)
Faces	1%	(0% - 3%)	23%	(15% - 31%)
Motor memory	1%	(0% - 3%)	10%	(4% - 16%)
Geographical/spatial	1%	(0% - 3%)	49%	(39% - 59%)

Processing	Pre-infection		Post-infection	
Letter reversals	2%	(0% - 5%)	45%	(35% - 55%)
Spelling errors	8%	(3% - 13%)	56%	(46% - 66%)
Word substitution errors	5%	(1% - 9%)	55%	(45% - 65%)
Number reversals	1%	(0% - 3%)	39%	(29% - 49%)
Reading comprehension	6%	(1% - 11%)	59%	(49% - 69%)
Auditory comprehension	**5%**	**(1% - 9%)**	**49%**	**(39% - 59%)**
Sound localization	3%	(0% - 6%)	19%	(11% - 27%)
Spatial perceptual distortions	1%	(0% - 3%)	21%	(13% - 29%)
Optic ataxia	1%	(0% - 3%)	51%	(41% - 61%)
Transposition of laterality	2%	(0% - 5%)	22%	(14% - 30%)
Left-Right confusion	6%	(1% - 11%)	30%	(21% - 39%)
Calculation	10%	(4% - 16%)	51%	(41% - 61%)
Fluency of speech	4%	(0% - 8%)	62%	(52% - 72%)
Fluency of written language	2%	(0% - 5%)	43%	(33% - 53%)
Handwriting	8%	(3% - 13%)	47%	(37% - 57%)

Executive functioning	Pre-infection		Post-infection	
Unfocused concentration	4%	(0% - 8%)	81%	(73% - 89%)
Brain fog	3%	(0% - 6%)	84%	(77% - 91%)
Prioritizing multiple tasks	6%	(1% - 11%)	76%	(68% - 84%)
Multitasking	3%	(0% - 6%)	74%	(65% - 83%)
Racing thoughts	1%	(0% - 3%)	54%	(44% - 64%)
Obsessive thoughts	4%	(0% - 8%)	56%	(46% - 66%)
Mental apathy	4%	(0% - 8%)	72%	(63% - 81%)
Abstract reasoning	3%	(0% - 6%)	51%	(41% - 61%)
Intrusive thoughts	no data			
Emotional				
Decreased frustration tolerance	5%	(1% - 9%)	80%	(72% - 88%)
Hyperarousal	no data			
Sudden mood swings	3%	(0% - 6%)	74%	(65% - 83%)
Hypervigilance	1%	(0% - 3%)	45%	(35% - 55%)
Paranoia	1%	(0% - 3%)	26%	(17% - 35%)
Crying spells	0%	(0% - 0%)	50%	(40% - 60%)
Anhedonia	3%	(0% - 6%)	64%	(55% - 73%)
Intrusive emotions	No data			

Imagery				
Capacity for visual imagery	2%	(0% - 5%)	19%	(11% - 27%)
Intrusive aggressive images	1%	(0% - 3%)	19%	(11% - 27%)
Intrusive sexual images	1%	(0% - 3%)	6%	(1% - 11%)
Intrusive images, other	1%	(0% - 3%)	10%	(4% - 16%)
Hypnagogic hallucinations	2%	(0% - 5%)	21%	(13% - 29%)
Vivid nightmares	3%	(0% - 6%)	38%	(28% - 48%)
Illusions	2%	(0% - 5%)	20%	(12% - 28%)
Hallucinations (auditory, visual, olfactory, tactile)	2%	(0% - 5%)	18%	(10% - 26%)
Emotional				
Decreased frustration tolerance	5%	(1% - 9%)	80%	(72% - 88%)
Hyperarousal	no data			
Sudden mood swings	3%	(0% - 6%)	74%	(65% - 83%)
Hypervigilance	1%	(0% - 3%)	45%	(35% - 55%)
Paranoia	1%	(0% - 3%)	26%	(17% - 35%)
Crying spells	0%	(0% - 0%)	50%	(40% - 60%)
Anhedonia	3%	(0% - 6%)	64%	(55% - 73%)
Intrusive emotions	No data			
Dissociative symptoms				
Depersonalization	2%	(0% - 5%)	64%	(55% - 73%)
Derealization	1%	(0% - 3%)	29%	(20% - 38%)
Dissociative episodes	0%	(0% - 0%)	12%	(6% - 18%)

Behavioral				
Disinhibition	2%	(0% - 5%)	33%	(24% - 42%)
Exaggerated startle reflex	1%	(0% - 3%)	49%	(39% - 59%)
Explosive anger	3%	(0% - 6%)	39%	(29% - 49%)
Suicidal	1%	(0% - 3%)	28%	(19% - 37%)
Homicidal	0%	(0% - 0%)	1%	(0% - 3%)
Accident prone	4%	(0% - 8%)	35%	(26% - 44%)
Decreased social functioning	6%	(1% - 11%)	72%	(63% - 81%)
Decreased job/school performance	2%	(0% - 5%)	78%	(70% - 86%)
Marital/family problems	4%	(0% - 8%)	39%	(29% - 49%)
Substance abuse	1%	(0% - 3%)	12%	(6% - 18%)
Legal difficulties	1%	(0% - 3%)	8%	(3% - 13%)
Compensatory compulsions	2%	(0% - 5%)	58%	(48% - 68%)
Dropping objects	2%	(0% - 5%)	52%	(42% - 62%)

Psychiatric syndromes				
Depression	9%	(3% - 15%)	79%	(71% - 87%)
Rapid cycling bipolar	3%	(0% - 6%)	11%	(5% - 17%)
Panic disorder	2%	(0% - 5%)	49%	(39% - 59%)
Obsessive compulsive disorder	2%	(0% - 5%)	24%	(16% - 32%)
Social anxiety disorder	7%	(2% - 12%)	36%	(27% - 45%)
Generalized anxiety disorder	3%	(0% - 6%)	53%	(43% - 63%)
Posttraumatic stress disorder	6%	(1% - 11%)	16%	(9% - 23%)

Vegetative				
Energy				
Fatigue	1%	(0% - 3%)	76%	(68% - 84%)
Sleep				
Non-restorative sleep	4%	(0% - 8%)	76%	(68% - 84%)
Insomnia				
Insomnia, initial	5%	(1% - 9%)	70%	(61% - 79%)
Insomnia, mid	1%	(0% - 3%)	72%	(63% - 81%)
Insomnia, late	1%	(0% - 3%)	58%	(48% - 68%)
Hypersomnia	2%	(0% - 5%)	73%	(64% - 82%)
Loss of circadian rhythm	5%	(1% - 9%)	44%	(34% - 54%)
Delayed sleep phase disorder	no data			
Sleep apnea, central	no data			
Sleep apnea, obstructive	no data			
Sleep paralysis	no data			
Cataplexy	no data			
Narcolepsy	no data			

Eating				
Anorexia	1%	(0% - 3%)	45%	(35% - 55%)
Weight loss	1%	(0% - 3%)	45%	(35% - 55%)
Non-appetite over-eating	2%	(0% - 5%)	34%	(25% - 43%)
Weight gain without increased food intake	1%	(0% - 3%)	27%	(18% - 36%)
Weight gain with increased food intake	2%	(0% - 5%)	22%	(14% - 30%)
Sexual functioning				
Decreased libido	4%	(0% - 8%)	60%	(50% - 70%)
Increased libido	1%	(0% - 3%)	9%	(3% - 15%)
Decreased arousal	1%	(0% - 3%)	42%	(32% - 52%)
Decreased orgasm	2%	(0% - 5%)	41%	(31% - 51%)
Altered sexual imagery	0%	(0% - 0%)	3%	(0% - 6%)

Temperature control				
Body temperature fluctuations	3%	(0% - 6%)	63%	(54% - 72%)
Flushing	3%	(0% - 6%)	49%	(39% - 59%)
Intolerance to heat	2%	(0% - 5%)	58%	(48% - 68%)
Intolerance to cold	2%	(0% - 5%)	64%	(55% - 73%)
Decreased body temperature	5%	(1% - 9%)	52%	(42% - 62%)
Low grade fevers	1%	(0% - 3%)	47%	(37% - 57%)
Night sweats	2%	(0% - 5%)	60%	(50% - 70%)
Chills	2%	(0% - 5%)	59%	(49% - 69%)

Neurological				
Headache	3%	(0% - 6%)	68%	(59% - 77%)
Cervical radiculopathy	0%	(0% - 0%)	43%	(33% - 53%)
Migraine	4%	(0% - 8%)	33%	(24% - 42%)
Coital cephalgia	0%	(0% - 0%)	4%	(0% - 8%)
TMJ	2%	(0% - 5%)	41%	(31% - 51%)
Tension	2%	(0% - 5%)	57%	(47% - 67%)
Cluster	0%	(0% - 0%)	10%	(4% - 16%)
Sinus	5%	(1% - 9%)	41%	(31% - 51%)
Thunderclap	no data			

Cranial nerves				
I Olfactory: loss of smell, altered taste	2%	(0% - 5%)	22%	(14% - 30%)
II Ophthalmologic				
Blurred vision	2%	(0% - 5%)	50%	(40% - 60%)
Photophobia to bright light	3%	(0% - 6%)	61%	(51% - 71%)
Sensitivity to fluorescence and flicker	3%	(0% - 6%)	48%	(38% - 58%)
Floaters	1%	(0% - 3%)	56%	(46% - 66%)
Flashes	0%	(0% - 0%)	23%	(15% - 31%)
Conjunctivitis	0%	(0% - 0%)	19%	(11% - 27%)
Eye pain	2%	(0% - 5%)	36%	(27% - 45%)
Dry eyes	0%	(0% - 0%)	32%	(23% - 41%)
Blind spots	1%	(0% - 3%)	12%	(6% - 18%)
Night blindness	4%	(0% - 8%)	36%	(27% - 45%)
Peripheral shadows	2%	(0% - 5%)	18%	(10% - 26%)
Papilledema	0%	(0% - 0%)	1%	(0% - 3%)
Iritis	0%	(0% - 0%)	1%	(0% - 3%)
Uveitis	0%	(0% - 0%)	1%	(0% - 3%)
Optic neuritis	0%	(0% - 0%)	2%	(0% - 5%)
Panopsia	no data			

III, IV, VI Double vision or eye drifts when tired, ptosis	**2%**	**(0% - 5%)**	**36%**	**(27% - 45%)**
V Sensory loss, pain	0%	(0% - 0%)	27%	(18% - 36%)
VII Bell's palsy	2%	(0% - 5%)	16%	(9% - 23%)
VIII Tinnitus	1%	(0% - 3%)	51%	(41% - 61%)
Hearing loss	1%	(0% - 3%)	26%	(17% - 35%)
Dizziness	2%	(0% - 5%)	53%	(43% - 63%)
Vertigo	1%	(0% - 3%)	29%	(20% - 38%)
Motion sickness	9%	(3% - 15%)	40%	(30% - 50%)
Mal de debarquement	no data			
Tullio's	0%	(0% - 0%)	12%	(6% - 18%)
IX, X Episodic loss of speech, choking on food, difficulty swallowing	0%	(0% - 0%)	36%	(27% - 45%)
XI. Sternocleidomastoid and trapezius pain and paresis	0%	(0% - 0%)	44%	(34% - 54%)
XII. Tongue deviates to side	0%	(0% - 0%)	5%	(1% - 9%)

Seizures				
Grand mal	1%	(0% - 3%)	4%	(0% - 8%)
Partial	2%	(0% - 5%)	8%	(3% - 13%)
Other Neurological				
Numbness	1%	(0% - 3%)	59%	(49% - 69%)
Tingling	1%	(0% - 3%)	71%	(62% - 80%)
Sensory loss	1%	(0% - 3%)	40%	(30% - 50%)
Burning	1%	(0% - 3%)	36%	(27% - 45%)
Static electric sensation	0%	(0% - 0%)	35%	(26% - 44%)
Formication, crawling sensation	0%	(0% - 0%)	35%	(26% - 44%)
Stabbing sensation	0%	(0% - 0%)	28%	(19% - 37%)
Sensation of wetness	no data			
Sensation of vibration	no data			
Paresis	2%	(0% - 5%)	66%	(57% - 75%)
Tremor	3%	(0% - 6%)	40%	(30% - 50%)
Twitching	1%	(0% - 3%)	56%	(46% - 66%)
Muscle tightness	0%	(0% - 0%)	56%	(46% - 66%)
Restless leg	5%	(1% - 9%)	50%	(40% - 60%)
Myoclonic jerks	1%	(0% - 3%)	38%	(28% - 48%)
Torticollis	0%	(0% - 0%)	1%	(0% - 3%)
Tourette's	0%	(0% - 0%)	2%	(0% - 5%)
Extrapyramidal symptoms	0%	(0% - 0%)	3%	(0% - 6%)
Ataxia	1%	(0% - 3%)	6%	(1% - 11%)
Herniated disc(s)	4%	(0% - 8%)	14%	(7% - 21%)
Spasticity	1%	(0% - 3%)	1%	(0% - 3%)
Other neurological	1%	(0% - 3%)	6%	(1% - 11%)
Romberg	1%	(0% - 3%)	21%	(13% - 29%)

Musculoskeletal				
Joint pain, swelling, tightness, crepitation (specify joints)	2%	(0% - 5%)	81%	(73% - 89%)
Bone thinning/Fractures	1%	(0% - 3%)	7%	(2% - 12%)
Periostitis (tibia, ribs, iliac crest, sternum, clavicle, etc.	4%	(0% - 8%)	7%	(2% - 12%)
Epicondylitis	2%	(0% - 5%)	20%	(12% - 28%)
Deep bone pain	no data			
Foot pain	no data			
Plantar fasciitis	0%	(0% - 0%)	33%	(24% - 42%)
Fibromyalgia	1%	(0% - 3%)	36%	(27% - 45%)
Myalgia	1%	(0% - 3%)	54%	(44% - 64%)
Chondritis (ear, nose, costochondral)	0%	(0% - 0%)	38%	(28% - 48%)
Tendonitis	3%	(0% - 6%)	17%	(10% - 24%)
Carpal tunnel	1%	(0% - 3%)	15%	(8% - 22%)

Cardiovascular				
Chest pain	2%	(0% - 5%)	39%	(29% - 49%)
Heart block	2%	(0% - 5%)	11%	(5% - 17%)
Mitral valve prolapse	4%	(0% - 8%)	20%	(12% - 28%)
Racing pulse	0%	(0% - 0%)	48%	(38% - 58%)
Episodes rapid and slow heart rate	0%	(0% - 0%)	34%	(25% - 43%)
Postural orthostatic tachycardia syndrome	no data			
Postural orthostatic hypotension	0%	(0% - 0%)	12%	(6% - 18%)
Pericarditis	0%	(0% - 0%)	1%	(0% - 3%)
Cardiomyopathy	0%	(0% - 0%)	2%	(0% - 5%)
Murmur	7%	(2% - 12%)	16%	(9% - 23%)
Hypertension	2%	(0% - 5%)	15%	(8% - 22%)
Hypertensive crisis	1%	(0% - 3%)	3%	(0% - 6%)

Upper respiratory and pulmonary				
Swollen glands	0%	(0% - 0%)	41%	(31% - 51%)
Cough	1%	(0% - 3%)	28%	(19% - 37%)
Allergies	7%	(2% - 12%)	35%	(26% - 44%)
Nose bleeds	1%	(0% - 3%)	7%	(2% - 12%)
Tooth pain	0%	(0% - 0%)	32%	(23% - 41%)
Periodontal disease	0%	(0% - 0%)	19%	(11% - 27%)
Shortness of breath	1%	(0% - 3%)	43%	(33% - 53%)
Asthma	4%	(0% - 8%)	14%	(7% - 21%)
Air hunger	no data			

Gastrointestinal				
Upper gastrointestinal distress	6%	(1% - 11%)	25%	(17% - 33%)
Irritable bowel	6%	(1% - 11%)	50%	(40% - 60%)
Abdominal bloating	1%	(0% - 3%)	42%	(32% - 52%)
Gastroparesis	0%	(0% - 0%)	1%	(0% - 3%)
Hepatitis	0%	(0% - 0%)	1%	(0% - 3%)
Pancreatitis	0%	(0% - 0%)	1%	(0% - 3%)
Inflammatory bowel	0%	(0% - 0%)	2%	(0% - 5%)
Cholecystitis	0%	(0% - 0%)	2%	(0% - 5%)
Non-calculous cholecystitis	no data			
Gall stones	0%	(0% - 0%)	1%	(0% - 3%)

Genitourinary				
Genital pain	1%	(0% - 3%)	27%	(18% - 36%)
Breast tenderness, pain	1%	(0% - 3%)	24%	(16% - 32%)
Lactation	0%	(0% - 0%)	8%	(3% - 13%)
Menstrual irregularity	3%	(0% - 6%)	30%	(21% - 39%)
Spastic bladder	1%	(0%-3%)	47%	(37%-57%)
Urinary incontinence	1%	(0% - 3%)	18%	(10% - 26%)
Interstitial cystitis	0%	(0% - 0%)	1%	(0% - 3%)
Recurrent urinary tract infections	1%	(0% - 3%)	11%	(5% - 17%)
Anesthesia of genitalia	0%	(0% - 0%)	6%	(1% - 11%)
Atrophy of genitalia	0%	(0% - 0%)	3%	(0% - 6%)

Other				
Chronic pain	0%	(0% - 0%)	41%	(31% - 51%)
Alcohol intolerance	3%	(0% - 6%)	41%	(31% - 51%)
Multiple chemical sensitivity	2%	(0% - 5%)	25%	(17% - 33%)
Mold sensitivity	no data			
Hair loss	2%	(0% - 5%)	47%	(37% - 57%)
Thyroid dysfunction	1%	(0% - 3%)	20%	(12% - 28%)
Wilson syndrome	0%	(0% - 0%)	4%	(0% - 8%)
Adrenal insufficiency	0%	(0% - 0%)	10%	(4% - 16%)
Hypoglycemia	2%	(0% - 5%)	20%	(12% - 28%)
Vasculitis	0%	(0% - 0%)	5%	(1% - 9%)
Ankle edema	1%	(0% - 3%)	20%	(12% - 28%)
Splenomegaly	0%	(0% - 0%)	4%	(0% - 8%)
Ecchymosis	1%	(0% - 3%)	34%	(25% - 43%)
Acrodermatitis chronicum atrophicans	0%	(0% - 0%)	1%	(0% - 3%)
Lymphocytoma	3%	(0% - 6%)	3%	(0% - 6%)
Erythema of palms and soles	0%	(0% - 0%)	0%	(0% - 0%)
Bartonella tracks	no data			

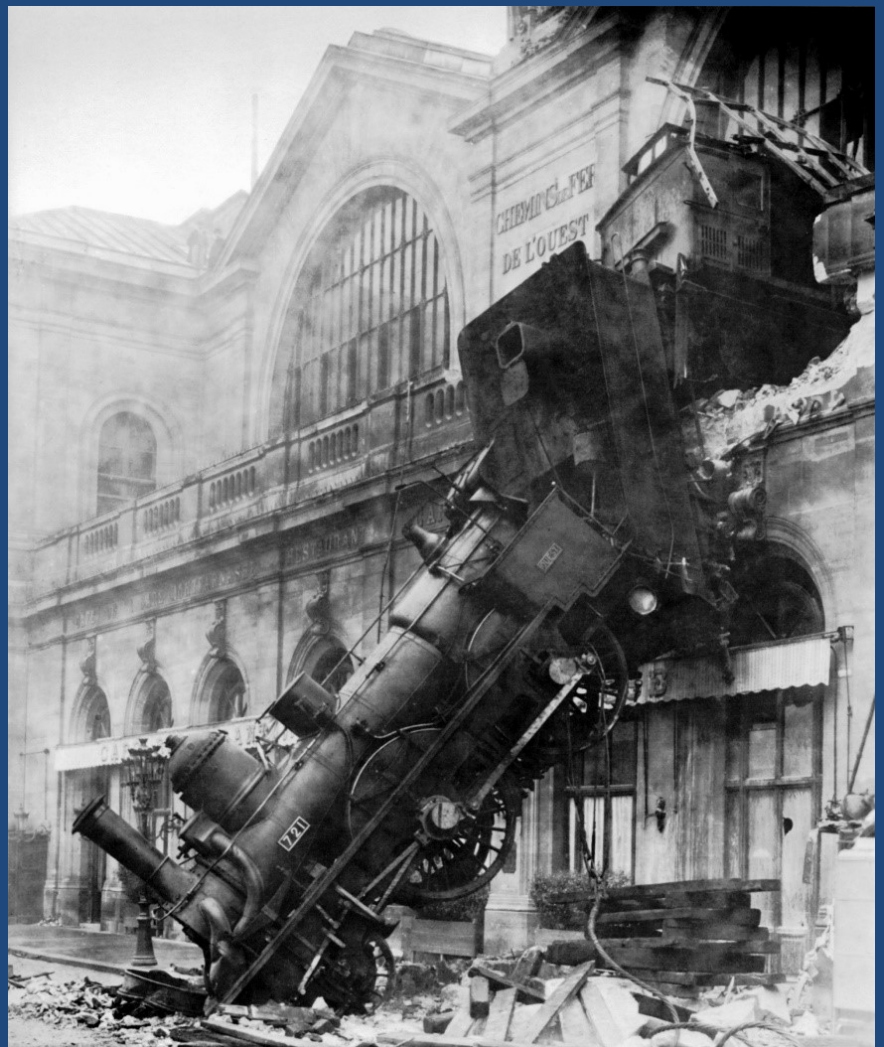
Symptom patterns				
Herxheimer reaction	0%	(0% - 0%)	73%	(64% - 82%)
Progression of symptoms	0%	(0% - 0%)	86%	(79% - 93%)
Fluctuation of symptoms	0%	(0% - 0%)	82%	(74% - 90%)
Stress increased symptoms	0%	(0% - 0%)	77%	(69% - 85%)
28-day or longer symptom cycle	0%	(0% - 0%)	43%	(33% - 53%)
Antibiotic reduce symptoms	0%	(0% - 0%)	72%	(63% - 81%)

Conclusion

- The results of this study were then used to develop three clinical assessment forms (24 item and full assessment) that can be used when the diagnosis of Lyme disease is suspected. Since controversy surrounds the commonly used immune-based testing for Lyme disease, this use of clinical diagnostic scales can be of value in confirming a diagnosis of Lyme borreliosis. The assessment systems can also be used to track further disease progression, improvement or response to treatment. The use of this assessment, and/or refinement by others can help to further validate these clinical assessment systems for the clinical diagnosis of Lyme borreliosis.

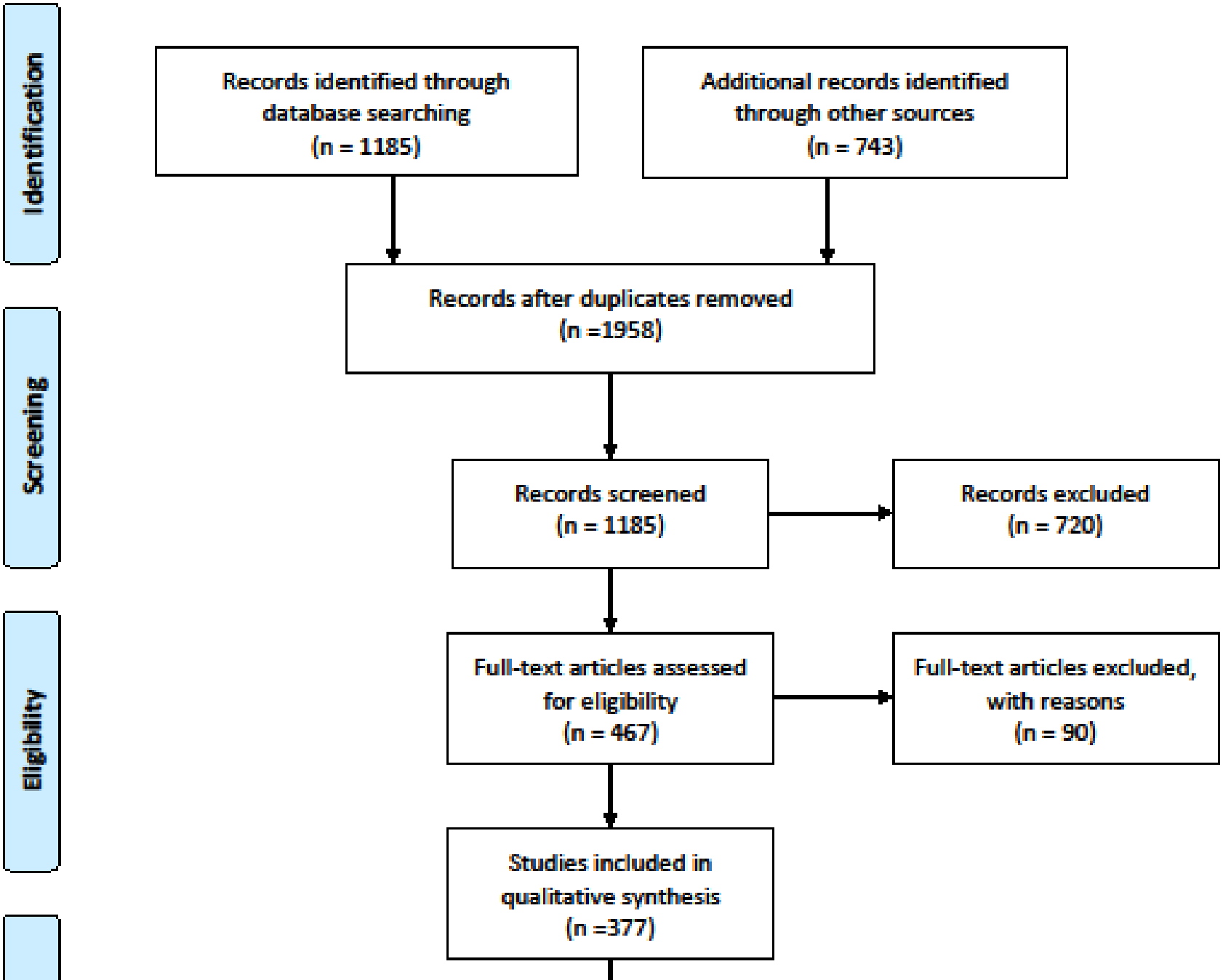
Concentration impairments
Short-term memory problems
Word finding difficulty
Name recall difficulty
Fluency of speech difficulties
Brain fog
Sudden mood swings
Decreased social functioning
Decreased job/school performance
Depression
Fatigue
Insomnia
Night sweats
Low body temperature
Headache
Blurred vision
Floaters
Tinnitus (ringing in the ears)
Sensitive to sound
Dizziness
Numbness
Tingling
Joint pain, swelling
Fluctuation of symptoms
Stress increases symptoms

Proposed Lyme Disease Guidelines and Psychiatric Illnesses. Bransfield RC. Friedman KJ. Healthcare (Basel) 2019. 9;7(3).



Systematic review of Lyme Disease causing psychiatric illness I

- The PubMed electronic search for citations:
- Lyme Disease psychiatric illness: 1054
- Lyme Disease causing psychiatric illness: 384
- Lyme Disease causing mental illness: 413
- Lyme Disease causing developmental disorders children: 134
- Lyme Disease causing behavioral disorders children: 268
- Lyme Disease psychiatric disorders children: 267
- ILADS Lyme/TBD causing psychiatric illness: 377 citations (304 psychiatry, 73 Dementia)
- My archives: 389


Identification
Screening
Eligibility
Records identified through database searching (n = 1185)
Additional records identified through other sources (n = 743)
Records after duplicates removed (n =1958)
Records screened (n = 1185)
Records excluded (n = 720)
Full-text articles assessed for eligibility (n = 467)
Full-text articles excluded, with reasons (n = 90)
Studies included in qualitative synthesis (n =377)

Citations in Perspective

- Lyme causing psychiatric symptoms: 387
- Lyme causing dementia: 73
- IDSA: 4 (only 2 failed to show an association)
- Citation total: 467 vs. 2, (0.4% of literature)
- Therefore the guidelines are evidence biased, not evidence based due to the selective reporting of outcomes

Conclusion

- The disclaimer and the manner these guidelines are implemented are insufficient to remove the authors and sponsoring organizations from liability for harm caused by these guidelines.
- The guidelines and supporting citations place improper credibility upon surveillance definition rather than clinical diagnosis criteria.
- The guidelines fail to address the clear causal association between Lyme disease and psychiatric illnesses, suicide, violence, developmental disabilities and substance abuse despite significant supporting evidence.

Conclusion II

- If these guidelines are published without very major revisions, and if the sponsoring medical societies attempt to enforce these guidelines as a standard of care, it will directly contribute to increasing a national and global epidemic of psychiatric illnesses, suicide, violence, substance abuse and developmental disabilities and the associated economic and non-economic societal burdens.
- The guideline flaws could be improved with a more appropriate disclaimer, an evidence-based rather than an evidence-biased approach, more accurate diagnostic criteria, and recognition of the direct and serious causal association between Lyme Disease and psychiatric illnesses.

Thanks for your attention and your commitment to our patients