

• Diagnosis and Management of Functional Neurological Disorders in Children and Adolescents

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Disclosures

- Nothing to disclose

Outline

- I. Definition and diagnostic terminology
- II. Factors associated with FND/Somatic Symptom and Related Disorders
- III. Multidisciplinary treatment
- IV. Prognosis
- V. References

Somatization

- The tendency to experience/express emotional distress through physical complaints or the tendency for emotional distress to affect physical health
- A lower threshold for experiencing sensations from the body as being distressing or painful

Different Names, Same Problem

- Medically Unexplained Symptoms
- Functional
- Psychosomatic/Psychogenic/Non-organic
- Somatoform/Somatization
- Bodily Distress Syndrome
- Conversion Disorder (DSM-5)
- Somatic Symptom Disorder (ICD-10)
- Hysteria/Supratentorial

Manifestations of Somatic Symptoms in Youth

- **Pain** (Thomson et al, 2014, Ibeziako et al, 2016; Bedard et al, 2018)
- **Neurological symptoms** (Raper, Currigan, et al 2018)
 - **Seizures (41%)**
 - **Sensory (18%)**
 - Double/blurred vision
 - Deafness/blindness
 - Numbness/tingling
 - **Motor (18%)**
 - Weakness/paralysis in parts of body
 - Loss of voice

Functional Disorders

- Chronic or recurrent physical symptoms not explained by structural or biochemical abnormalities, that have no underlying inflammatory, anatomic, metabolic, neurologic, or neoplastic cause, but which have a debilitating impact on individual functioning and emotional wellbeing (Chiou & Nurko, 2010. Tan et al, 2013)
- Neurological symptoms precipitated and/or perpetuated by maladaptive cognitive, affective, behavioral, psychological, and perceptual processes (Perez, Aybek, Nicholson, et al, 2020)

FND Prevalence for Youth

- 1.30 per 100,000 in community setting – UK and Ireland; (Reading, Lynn, et al. 2013)
- 2.3 - 4.2 per 100,000 in clinical outpatient setting - Australia (Kozłowska, Nunn, Rose, et al. 2007)
- 26 – 40 per 100,000 in inpatient medical setting - USA (Bujoreanu et al, 2014; Thomson et al, 2014, Ibeziako et al, 2016; Bedard et al, 2018)

Etiological Models

- Partly biological circumstances (e.g. heredity), partly learned behavior and acquired attitudes
- Precipitating factors like physical injury, disease, social and/or emotional problems and stressors
- Perpetuating /aggravating factors:
 - The health system and the social system play a significant part
 - Family dynamics

Case Example

- 15 year-old White female with a history of 3 concussions in the past 2 years, headaches, and pseudoseizures,
- Has had a previous psychiatric inpatient admission for functional impairment, followed by partial hospital program
- Presents to the ED with sudden onset whole body paralysis and inability to speak
- Uses eyes to communicate, wears diaper, is spoon fed by mother
- Extensive medical work-up is not indicative of organic etiology

Vulnerabilities for FND

- Genetic factors
- Physical illness
- Developmental considerations
- Personality traits and coping styles
- High achieving families
- Behavioral principles
- Family system
- Life events
- Academic pressures
- Peers and bullying
- Trauma

Psychiatry Consultation Service (PCS) Studies

- Characteristics of medically hospitalized pediatric patients with somatoform diagnoses (Bujoreanu et al, 2014)
- Somatoform disorders and trauma in medically admitted children, adolescents, and young adults (Thomson et al, 2014)
- Bullying victimization in medically hospitalized patients with somatic symptom and related disorders (Ibeziako et al, 2016)
- Perception and impact of Life Events in medically hospitalized patients with somatic symptom and related disorders (Bedard et al, 2018)

Genetic Factors

- Somatic symptoms cluster in families
 - 10-20% of first-degree relatives have somatic symptoms
 - 29% concordance in monozygotic twins
 - PCS studies:
 - 30% medical illness in family
- Inheritability/Presence of anxiety & depression in families/patient
 - PCS studies:
 - 50% of bio parents had mental illness
 - 32% depression
 - 25% anxiety

Physical Illness

- An antecedent history (accident, viral illness, etc.) may trigger onset of symptoms and lead to prolonged recovery or recurrence of symptoms after illness should have abated
- Prior history of recurrent somatic complaints without medical findings
- **PCS studies:**
 - 73% had one or more medical diagnoses
 - 48% had comorbid medical diagnoses
 - 83% of these had overlapping symptoms
 - 30% had acute physical illness preceding
 - 25% had premorbid functional diagnoses

Developmental Transitions

- Early adolescence
- PCS studies:
 - 14.7 yo median age
 - 73% of the sample was between 13-18yo

Personality Traits & Coping Styles

- Alexithymia
- Somatosensory amplification
- Conscientious, “good child”
- Perfectionistic tendencies
 - PCS studies: 72%
- Internalizing tendencies, sensitive, insecure, anxious temperament
 - PCS studies: 80%

Behavioral Principles

- Social learning theory
 - Symptom model
- Classical conditioning - antecedents
 - Primary gain: avoidance of negative emotions
- Operant conditioning - consequences
 - Secondary gain: positive attention

High Achieving Families

- Familial pressure on the child to be good, compliant, and successful (academically or in other fields)
- The development and maintenance of the symptoms may then act as a protective mechanism and a way out of an 'intolerable predicament'
- PCS studies:
 - \$80,000 median household income
 - 84% had median household income bigger than the national average of \$50,000
 - \$240,000 maximum household income

Family Dynamics

- Family enmeshment, overprotectiveness, rigidity, lack of conflict resolution
- Problematic parent interactions and higher parental conflict
 - PCS studies:
 - 42% conflict between patient and family members

Life Events (LE)

- PCS study:
 - 94% endorsed at least one LE the year prior to hospitalization (mean 8)
 - 81% endorsed LEs across multiple domains (academic most prevalent)
 - 56% perceived LEs as great impact on their lives
 - 48% divorce
 - 41% experienced losses
 - 30% moving and financial stress

School Stressors

- Most common environmental factors for the development and maintenance of somatic disorders in pediatric age group.
 - Identified in the literature across cultures
- PCS studies:
 - 50% self/other imposed academic pressure
 - 45% school transitions
 - 36% formal school/academic accommodations

Trauma

- In adult samples, high rates of past
 - Sexual abuse (32-45%)
 - Physical abuse (26-34%)
 - Medical trauma (8%)
- PCS study:
 - 29% pediatric/young adult - similar with national norms.
 - Linked with higher rates of
 - family stressors (conflict and illness)
 - psychiatric comorbidities and treatment

Bullying

- Strong risk factor for the development of somatic symptoms even long after the bullying has subsided
- Most common stressor associated with conversion diagnosis in UK/Ireland study
- **PCS study:**
 - 37% history of bullying victimization
 - Linked with higher rates of
 - functional neurologic symptoms
 - comorbid anxiety
 - suicidal histories
 - family psychiatric histories
 - learning disabilities and school accommodations

Case Example

- Biologically: genetic vulnerability for anxiety, depression, ADHD, as well as somatic symptom disorder
- Psychologically: high achieving and driven; recent school reintegration; concerns about learning disabilities; described as always happy and bubbly;
- Socially/culturally: religious, patriarchal family, 5 children (patient is 4th); father - attorney, mother – homemaker
- Developmental: started high school, lots of friends, interest in dating

Multidisciplinary Treatment Steps

- Medical assessment
- Biopsychosocial formulation
- Rehabilitative treatment approach
 - Behavioral interventions
 - Cognitive interventions
 - Physical Therapy interventions
 - Psychopharmacological interventions
 - Medical follow-up (as an intervention)

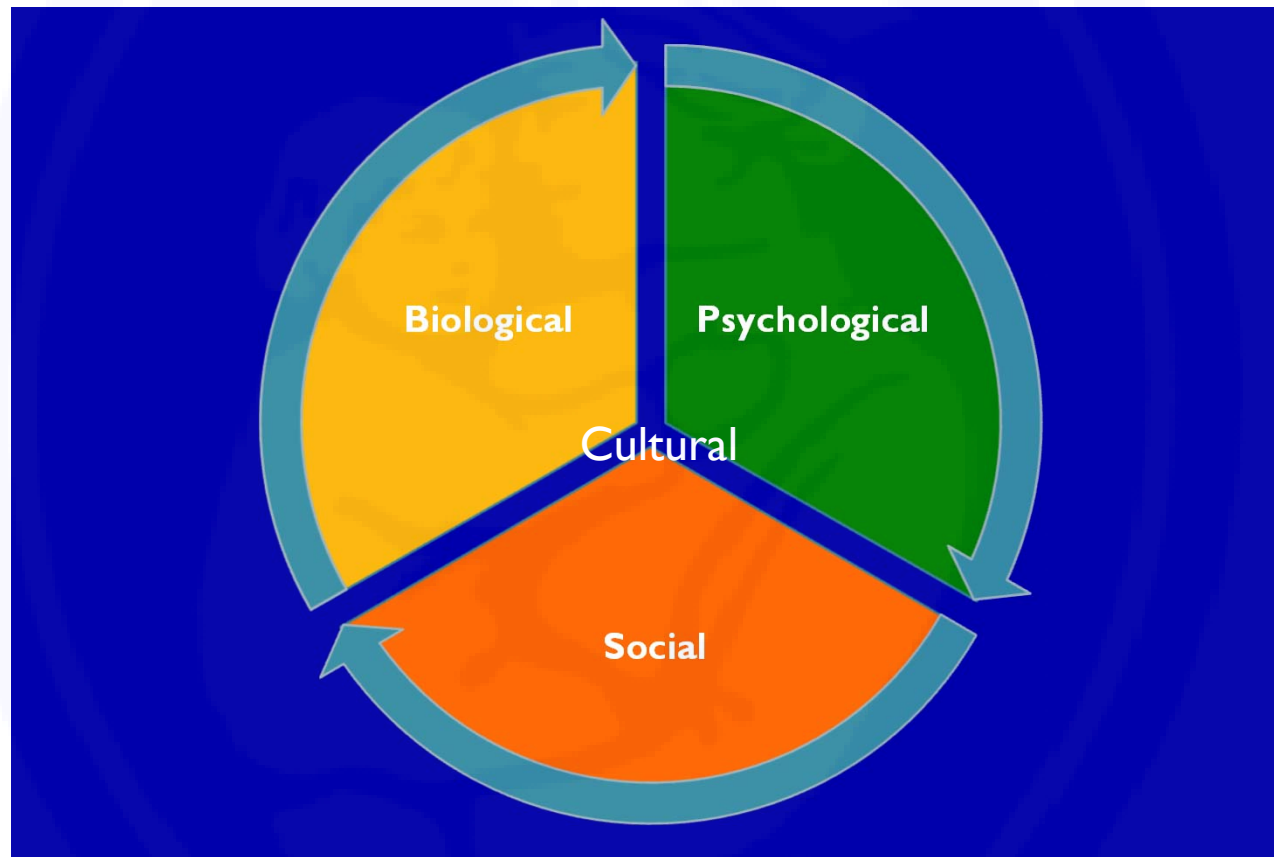
Medical Assessment

- Medical care is the entry point for patients with FND
- Differential diagnoses to be considered:
 - Well-defined physical disease
 - Well-defined mental disorder
 - Affective disorders
 - Anxiety disorders
 - Trauma/abuse
 - Psychosis
- Diagnosis of an organic disorder is delayed in less than 4% of the cases diagnosed with FND

Medical Assessment

- Presence of a physical illness does not exclude somatic process
- Presence of psychosocial factors does not exclude medical process
- Physical symptoms or functional impairment may occur in excess of expected symptoms in diagnosed medical illness
- Early physical symptoms from a diagnosed medical condition may evolve into psychologically-based symptoms
- Physical findings/abnormal test results may be secondary to the somatic symptoms especially when chronic and/or severe

Biopsychosocial Model



Multi-causality is the rule, not the exception

Biopsychosocial Model

- Help family move towards a common understanding of the mind-body connection with the provider
- Shift their approach from searching for the cause of the symptoms to the rehabilitation model
- Build trust! Be direct and honest with the patient about the areas you agree on and disagree, but be careful as not to make the patient feel ignorant, humiliated or not respected

Family Intervention

- Psychoeducation (explore thoughts and beliefs, reduce illness worry)
- Empathy
- Absolution of guilt
- Need for change
- Concrete language and instructions on treatment approaches & community interactions

Mind-Body Connection



Stress and Coping

- Stress = perceived threat + perceived inability to cope
- Coping = specific efforts, both behavioral and psychological, that people employ to master, tolerate, reduce, or minimize stressful events
 - Active coping – better outcome
 - Passive coping – worse outcome

Autonomic Nervous System

1. Sympathetic Nervous System – alarm/stress response
2. Parasympathetic Nervous System – relaxation response
 - Fight or Flight responses
 - “Threats” activate the SNS and produce a cascade of
 - Physical sensations
 - Cognitive/emotional responses

Cognitive Triad PLUS



Cognitive Triad PLUS

- Importance of symptoms-first approach: focus on body responses, including physiological response to emotions
- Youth with FND need more emotion identification work
- Always connect lessons learned back to body responses (including anticipatory anxiety about the symptoms returning)
- Be careful about symptom monitoring and tracking!

Behavioral Strategies

- Goal: to reduce barriers to functioning by reengaging in life
- Paced daily routines:
 1. Activities of daily living, meal and sleep routines
 2. School attendance
 3. Pleasant/distracting activities, family time
- Relaxation strategies
 - Some children will avoid relaxation, in order to avoid focusing on their bodies
 - Biofeedback – worthy investment!

Cognitive Strategies

- Reduce barriers to functioning by changing unhelpful thinking
- Identify and manage negative thoughts:
 - Connected with somatic symptoms
 - Catastrophizing: *Missing today's practice because of an episode, means I will never play again*
 - Minimizing: *So what if I was able to remain at school today, I still had abdominal pain*
 - Connect thoughts and actions with emotions and body sensations
 - *I am going to get dizzy (= I am worried/tense), so I won't go out with my friends*

Physical Therapy

- **Challenges:**
 - Ignoring the biopsychosocial context in which FND emerges
 - Overcoming previous negative encounters in the medical system
 - Avoiding amplification of symptoms by drawing attention to them
 - Managing comorbid pain, faints, PNES, anticipatory anxiety and panic attacks
- **Best approach:**
 - Interpersonal processes
 - Therapeutic relationship
 - Redirect attention away from symptoms
 - Emphasize completion of tasks/activities
 - Engage the sick body part indirectly

Physical Therapy

- Three cohorts of children, followed up to 4 years
- 85-95% FND symptoms resolved
- 52-61% returned to full health and school attendance
- Risk for poor outcomes:
 - Chronic FND symptoms at presentation
 - Comorbid mental health disorders, including other functional somatic symptoms
 - Chronic mental health problems

Psychopharmacology

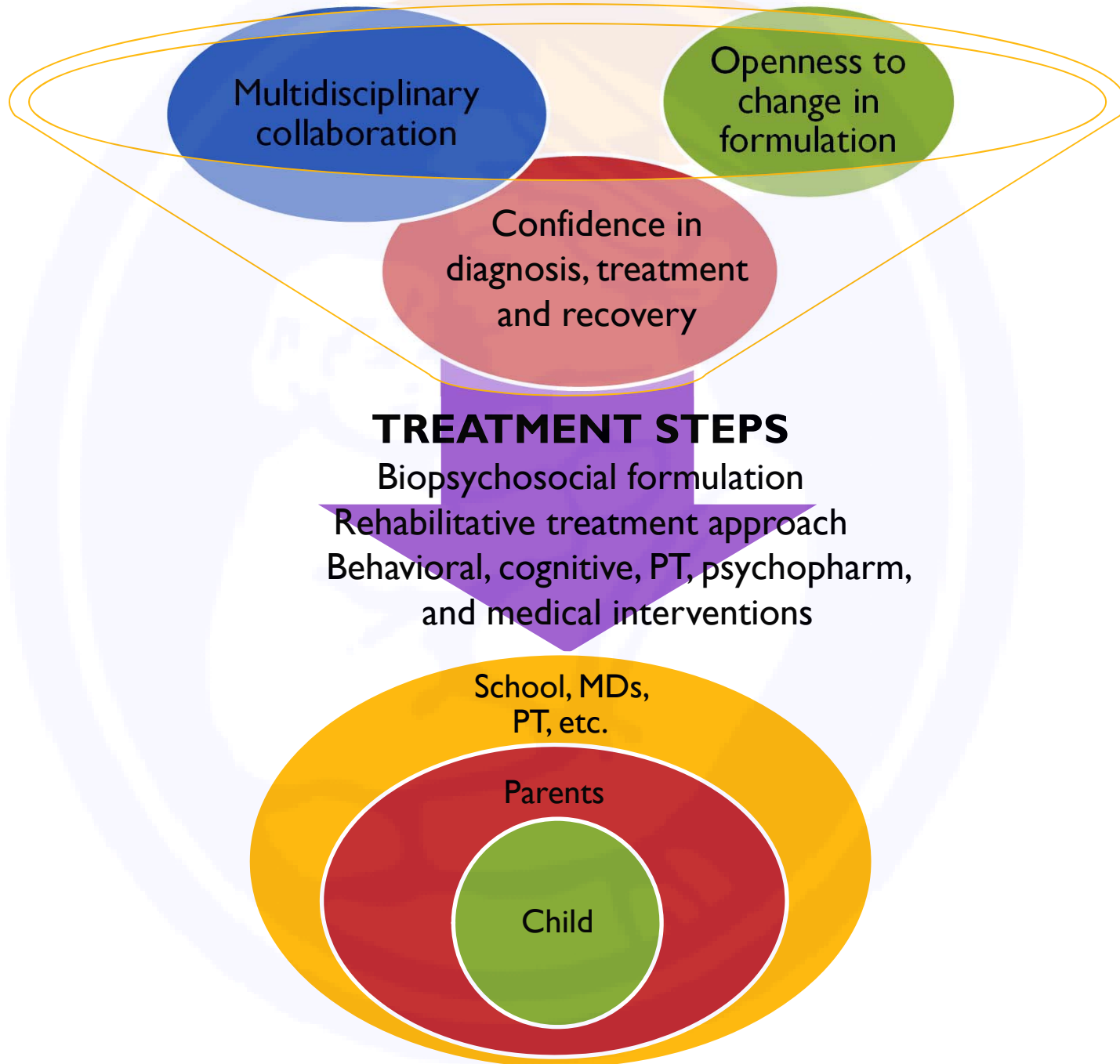
- Consider when comorbid psychiatric disorders are present, particularly
 - Depressive disorders
 - Anxiety disorders
- Many patients are prescribed psych meds by medical providers for “medical reasons”
 - TCAs/Mood Stabilizers/SNRIs for pain
 - Benzodiazepines for nausea or sleep
- Honestly discuss targeting psychological sx's

Medical Follow-Up

- Scheduled fixed duration follow up visits with PCP & neurologist at fixed intervals
 - Maintain alliance and open dialogue
 - Actively engage patient and family in designing and investing in treatment
 - Reduce the use of health care services
 - Avoid exploratory tests (danger of mixed messages)
- Focus on function improvement

Collateral and Collaboration

- Physicians, PT, & Mental Health
- Neurologist, PCP, & Other Specialists
- Mental Health, School, & Other Adult Supporters (e.g. coaches)
- Goals:
 - Common formulation and language
 - Increase in functioning
 - Setting appropriate goals



Treatment Resistance

- Explore possible causes
 - School environment/pressure, teachers
 - Parents, family dynamics
 - Child psychiatric comorbidities
 - Anxiety about missing medical conditions
 - Secondary gains – unintentional
 - Mixed messages from medical teams

Prognosis

- Longer duration of illness = longer time to full recovery
- Risks of not treating effectively:
 - Worsening/permanent physical disability e.g. development of contractures, use of wheelchair
 - Exposure to more invasive tests and interventions
 - Impairment of appropriate emotional, physical, social, and cognitive development
- Good news – Excellent response to treatment especially if identified early and if family is receptive to treatment recommendations

Prognosis

- Short-term outcome
 - >75% symptom remission in a community sample at 12 months (Ani, Reading, Lynn et al, 2013)
- Long-term outcomes (up to 21 years of age)
 - 23% showed evidence of FND in neurology clinic (Raper, Currigan, et al, 2019)

Prognosis

- Most patients can be managed in the outpatient setting with appropriate mental health follow-up
- Best chance for follow-up is mental health provider embedded in medical home of PCP, specialty clinics (pain, GI, neuro) and school counselor
- Patients with profound & pervasive functional impairment (not walking, talking, eating etc.) will likely need more intensive medical and psychiatric treatment

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