Functional Neurological Disorder – The Art of Being Normal

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Symptoms = Pathology?
Disability correlates very poorly with measures of disease across all illnesses

Table 3. Multivariate Associations of Depressive Symptoms, Cardiac Function, and Health Status in Participants With Coronary Artery Disease

<table>
<thead>
<tr>
<th></th>
<th>Greater Symptom Burden (n = 921)</th>
<th>Greater Physical Limitation (n = 867)</th>
<th>Worse Quality of Life (n = 926)</th>
<th>Worse Overall Health (n = 920)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)† P Value</td>
<td>OR (95% CI)‡ P Value</td>
<td>OR (95% CI)§ P Value</td>
<td>OR (95% CI)¶ P Value</td>
</tr>
<tr>
<td>Exercise capacity (per 3.3-MET decrease)</td>
<td>1.3 (1.1-1.5) .003</td>
<td>2.4 (2.0-2.9) &lt;.001</td>
<td>1.5 (1.3-1.8) &lt;.001</td>
<td>1.7 (1.5-2.0) &lt;.001</td>
</tr>
<tr>
<td>Depressive symptoms¶</td>
<td>1.8 (1.3-2.7) .002</td>
<td>3.1 (2.1-4.6) &lt;.001</td>
<td>3.1 (2.2-4.6) &lt;.001</td>
<td>2.0 (1.3-2.9) &lt;.001</td>
</tr>
<tr>
<td>Left ventricular ejection fraction (per 10% decrease)</td>
<td>1.0 (0.8-1.2) .86</td>
<td>1.0 (0.8-1.2) .96</td>
<td>1.0 (0.9-1.2) .79</td>
<td>1.0 (0.9-1.2) &gt;.99</td>
</tr>
<tr>
<td>Wall motion score index (per 0.35-point increase)</td>
<td>1.0 (0.8-1.2) .80</td>
<td>1.1 (0.9-1.3) .48</td>
<td>1.0 (0.9-1.2) .74</td>
<td>1.1 (1.0-1.3) .15</td>
</tr>
</tbody>
</table>

Ruo et al, 2003
Words in search of meaning...

Psychogenic
Non-organic
Malingering

Factitious
Supra-tentorial
Medically Unexplained
Pschosomatic

Somatisation
FUNCTIONAL
Hysteria

Conversion Disorder
Pseudo...
44 year old man, previously well.
Fainted following donating blood.
Came round with whole body shaking.
Persistent left arm shaking.
Now, after 2 years, has additional pain, fatigue and cognitive “fog”.
Normal investigations.

What is wrong?

• A movement disorder caused by underlying psychological disturbance.

• A movement disorder not caused by a known neurological disease process.

• A faked movement disorder

• A movement disorder that is dramatically altered by distraction or non-physiological manoeuvres.
Hoover’s Sign – accessing normal movement via diversion of attention

Picture from Stone et al, 2005: JNNP
Tubular Visual Field: Triumph of belief over optics

Picture from Stone et al, 2005: JNNP
Putting it Together

• Attention

• Beliefs/Expectations

• Agency
Cortical correlates of false expectations during pain intensity judgments—a possible manifestation of placebo/nocebo cognitions

Jürgen Lorenz, Michael Hauck, Robert C. Paur, Yoko Nakamura, Roger Zimmermann, Burkhart Bromm, Andreas K. Engel
Which neurological diseases are most likely to be associated with “symptoms unexplained by organic disease”

J. Stone · A. Carson · R. Duncan · R. Roberts · R. Coleman · C. Warlow · G. Murray · A. Pelosi · J. Cavanagh · K. Matthews · R. Goldbeck · M. Sharpe

Fig. 1 Proportion of patients in each neurological disease category with symptoms unexplained by disease (95% CI) (excluding headache). Mean % for neurological categories shown is 12% (shown by vertical line)
“You haven’t had a stroke/got MS etc”

“You’re very complicated: let’s do a complicated test”

“This is because of stress. I’ll refer you to psychiatry”

“So you think I’m making up my symptoms?!”

“I can’t find any trauma/depression/anxiety… and I’m very concerned about all these neurological symptoms”

Clinical Psychology? MDT inpatient?
JUST BE NORMAL
Being normal: Why and How

How does a Stroke happen
• A blood vessel in the brain gets blocked.

Why does a Stroke happen
• Genetics
• High Blood Pressure
• Diabetes
• Cholesterol
• Irregular heat beat
• Enlarged heart
• Smoking
• Homocysteine levels
• Thrombophilias
• Stress
• Lack of Exercise
• Etc etc etc…..

Risk Factors:
Often multiple ones affect a single person, often different between different people. Many we do not know about yet.

“I think you should be more explicit here in step two.”
from What’s so Funny about Science? by Sidney Harris (1977)
The How and Why of Functional Symptoms

**How**
- There is a problem with the way the person can access or control their body

**Why**
- Recent physical illness
- Recent or past stressful/traumatic events
- Joint Hypermobility
- Past or current depression and anxiety
- Likely many others we do not know about…
Diagnostic Explanation starts with Diagnosis!

- Drain the symptoms dry – be excited by and interested in print outs of symptoms!

- How confident am I? Do I need to do tests?

- Functional, not Functional, Functional +?

- How confident is the patient likely to be? What have they been told before? What are their core beliefs about symptoms?
Opening the discussion

• “You have a functional neurological disorder”

• “This is a common problem”

• “I have seen this many times before”

• “I believe your symptoms, I don’t think you’re making them up or putting them on”.
Explain how the diagnosis is made

Taking responsibility and authority away from the scanner and back into the clinic room.

A clear demonstration of the theoretical possibility of getting better.

• “Did you notice how your tremor paused briefly when you were tapping with the other hand?”

• “This shows me that the basic wiring of your nervous system is ok, that it can work.”

• “The problem is that your brain is not able to control or access your body normally.”
Discuss aetiology

• Acknowledge how little we know about why any illness happens.

• Discuss aetiology in terms of risk factors not causes.

• Recognise the issue of alexithymia in patients with FND.

• Triggering events (physical/emotional/both)

• “If you took 100 people with FND and 100 random people, more of the people with FND would have past traumatic events, recent life events, anxiety and depression…”

• “These are risk factors that can make people more vulnerable to developing FND, but like all risk factors they may or may not be present in an individual person.”

• “Sometimes the body is in a state of fight or flight even when we are feeling emotionally calm…”
Develop Skills in Effective Triage

• Explanation and follow up
• Educational resources
• Self management advice
• Pain management
• Physiotherapy
• Psychological Therapy
• Inpatient Rehabilitation
• Experimental Treatments
Outcomes of a 5-day physiotherapy programme for functional (psychogenic) motor disorders

G. Nielsen · L. Ricciardi · B. Demartini ·
R. Hunter · E. Joyce · M. J. Edwards

Physiotherapy for functional motor disorders: a consensus recommendation

Glenn Nielsen,¹,² Jon Stone,³ Audrey Matthews,⁴ Melanie Brown,⁴ Chris Sparkes,⁵ Ross Farmer,⁶ Lindsay Masterton,⁷ Linsey Duncan,⁷ Alisa Winters,⁷ Laura Daniell,⁵ Carrie Lumsden,⁷ Alan Carson,⁸ Anthony S David,⁹,¹⁰ Mark Edwards¹


<table>
<thead>
<tr>
<th>SF36 Domains</th>
<th>Intervention Group mean (SD)</th>
<th>Control Group mean (SD)</th>
<th>Regression coefficient for group, baseline as covariate (95% CI)</th>
<th>Cohen's $d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASELINE</td>
<td>FOLLOW</td>
<td>BASELINE</td>
<td>FOLLOW</td>
<td></td>
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<tr>
<td><strong>Physical function</strong></td>
<td>34.8 (23.7)</td>
<td>51.9 (27.2)</td>
<td>23.7 (19.0)</td>
<td>23.2 (21.3)</td>
</tr>
<tr>
<td>Physical Role</td>
<td>31.7 (28.9)</td>
<td>47.0 (30.3)</td>
<td>19.4 (21.7)</td>
<td>26.8 (22.5)</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td>45.6 (33.5)</td>
<td>47.4 (33.1)</td>
<td>32.1 (25.3)</td>
<td>33.9 (27.4)</td>
</tr>
<tr>
<td>General Health</td>
<td>47.3 (23.9)</td>
<td>54.1 (28.3)</td>
<td>40.7 (23.4)</td>
<td>39.6 (22.6)</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td>32.3 (21.4)</td>
<td>39.2 (27.3)</td>
<td>26.6 (17.6)</td>
<td>28.3 (20.2)</td>
</tr>
<tr>
<td>Social Function</td>
<td>39.7 (33.2)</td>
<td>56.9 (30.2)</td>
<td>34.4 (29.8)</td>
<td>37.0 (25.1)</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>70.1 (29.5)</td>
<td>68.7 (34.5)</td>
<td>61.0 (32.6)</td>
<td>62.5 (35.4)</td>
</tr>
<tr>
<td>Mental Health</td>
<td>65.5 (21.1)</td>
<td>67.9 (23.8)</td>
<td>58.4 (23.8)</td>
<td>59.3 (25.2)</td>
</tr>
<tr>
<td><strong>Physical Summary score</strong></td>
<td>33.1 (11.1)</td>
<td>38.7 (10.8)</td>
<td>28.7 (7.9)</td>
<td>29.5 (9.2)</td>
</tr>
<tr>
<td>Mental Summary score</td>
<td>45.2 (13.0)</td>
<td>45.9 (13.6)</td>
<td>42.6 (13.3)</td>
<td>43.3 (14.2)</td>
</tr>
</tbody>
</table>

Health related costs 3-6/12 after treatment: £444 Intervention vs. £968 Usual Care

<table>
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<tr>
<th>Collapsed Scores</th>
<th>Intervention Group</th>
<th>Control Group</th>
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<tbody>
<tr>
<td><strong>Good Outcome</strong></td>
<td>21 (72%)</td>
<td>5 (18%)</td>
</tr>
<tr>
<td><strong>Poor Outcome</strong></td>
<td>8 (28%)</td>
<td>23 (82%)</td>
</tr>
</tbody>
</table>
210 patients assessed for eligibility

7 declined to participate
  4 lost to contact
  1 chose not to participate
  1 needed chemotherapy treatment
  1 childcare issues

143 ineligible
  57 dominant pain
  50 psychological factors requiring treatment
  22 dominant fatigue
  16 investigations incomplete
  13 non-acceptance of the diagnosis
  10 symptoms not causing disability
  9 disability too great
  5 prominent dissociative seizures
  4 unable to attend
  3 aged under 18
  1 did not understand English

60 enrolled

60 randomised

Nielsen et al, 2016
Cognitive-behavioral therapy for psychogenic nonepileptic seizures
A pilot RCT

Figure 2: Mean predicted seizure frequency from Poisson mixed model analysis, adjusted for prerandomization seizure frequency

CBT = cognitive-behavioral therapy; SMC = standard medical care. Error bars: 95% confidence interval.
Multidisciplinary treatment for functional neurological symptoms: a prospective study

Benedetta Demartini · Amit Batla · Panayiotis Petrochilos · Linda Fisher · Mark J. Edwards · Eileen Joyce

Specialist inpatient treatment for severe motor conversion disorder: a retrospective comparative study

Ruaidhri McCormack,1,2 John Moriarty,3 John D Mellers,3 Paul Shotbolt,3 Rosa Pastena,3 Nadine Landes,3 Laura Goldstein,4 Simon Fleminger,5 Anthony S David2

Table 2  Mobility and activities of daily living (ADLs) of motor conversion disorder patients at admission and discharge

<table>
<thead>
<tr>
<th></th>
<th>Admission % (n)</th>
<th>Discharge % (n)</th>
<th>Statistical comparison admission to discharge</th>
</tr>
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<tbody>
<tr>
<td>Mobility</td>
<td></td>
<td></td>
<td>z   p Value</td>
</tr>
<tr>
<td>Walking unaided</td>
<td>15.2 (5)</td>
<td>42.4 (14)</td>
<td>4.308 &lt;0.001*</td>
</tr>
<tr>
<td>Walking aided</td>
<td>24.2 (8)</td>
<td>39.4 (13)</td>
<td></td>
</tr>
<tr>
<td>Wheelchair/bedbound</td>
<td>60.6 (28)</td>
<td>18.2 (6)</td>
<td></td>
</tr>
<tr>
<td>ADLs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Largely independent</td>
<td>57.6 (19)</td>
<td>78.8 (26)</td>
<td>3.155 0.002*</td>
</tr>
<tr>
<td>Somewhat dependent</td>
<td>21.2 (7)</td>
<td>15.2 (5)</td>
<td></td>
</tr>
<tr>
<td>Mostly/fully dependent</td>
<td>21.2 (7)</td>
<td>6.66 (2)</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p<0.05.
Experimental Treatment – Therapeutic Sedation

• 10 cases
• Paraplegia/ Fixed Dystonia
• Propofol sedation for ~30 mins
• Median duration 9 months
• 4 cases asymptomatic within 1 week
• 4 cases much or slightly better
• 2 cases no improvement

Case 1
Triplegia for 7 weeks


With thanks to Jon Stone
Organising a Service for FND: The final step in being normal

• Access to rapid positive diagnosis

• Triage into specific effective treatments that prioritise long-term self-management.

• Mechanism for long-term follow up of people with chronic symptoms and rapid response to new symptoms and relapses.
The final, final step in being normal
Collaborations and Acknowledgements

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