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Medically Unexplained Symptoms

Current Awareness Newsletter

February 2017 (Quarterly)

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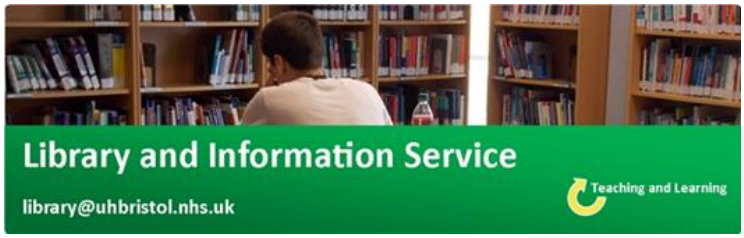

Training Sessions 2017

All sessions are 1 hour

February	(12pm - 1pm)	
	Fri 3rd	**Literature searching**
	Mon 6th	**Critical Appraisal**
	Tues 14th	**Interpreting Statistics**
	Weds 22nd	**Literature Searching**
March	(1pm - 2pm)	
	Thurs 2nd	**Critical Appraisal**
	Fri 10th	**Interpreting Statistics**
	Mon 13th	**Literature Searching**
	Tues 21st	**Critical Appraisal**
	Weds 29th	**Interpreting Statistics**
April	(12pm - 1pm)	
	Thurs 6th	**Literature Searching**
	Mon 10th	**Critical Appraisal**
	Tues 18th	**Interpreting Statistics**
	Thurs 27th	**Literature Searching**

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Literature searching: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a one to one session where we can guide you through the process of creating a well-focused literature research. Please email requests to library@uhbristol.nhs.uk

Contents

Updates

NICE National Institute for Health and Care Excellence

gammaCore® for the treatment of medically unexplained symptoms

Source: NIHR Horizon Scanning Research and Intelligence Centre - NIHR HSRIC - 01 January 2017

More: Horizon Scanning

Improving Together: A National Framework for Quality and GP Clusters in Scotland [PDF]

05 January 2017 - Publisher: Scottish Government

Read Summary

Treat as One: Bridging the gap between mental and physical healthcare in general hospitals [PDF]

27 January 2017 - Publisher: National Confidential Enquiry into Patient Outcome and Death (NCEPOD)

Read Summary

Cumbria's new persistent physical symptom management service [PDF]

Source: NHS Right Care - 31 January 2017

Cochrane Library

No new relevant evidence

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Conversion disorder in adults: Clinical features, assessment, and comorbidity

Literature review current through: Jan 2017. | **This topic last updated:** Jul 26, 2016.

- Subtypes of conversion disorder
- General principles
- Summary

Conversion disorder in adults: Treatment

Literature review current through: Jan 2017. | **This topic last updated:** Jan 28, 2016.

- First line treatment
- Pharmacotherapy
- Summary and recommendations

Conversion disorder in adults: Terminology, diagnosis, and differential diagnosis

- Diagnosis
- Summary

Conversion disorder in adults: Epidemiology, pathogenesis, and prognosis

Literature review current through: Jan 2017. | **This topic last updated:** Nov 24, 2015.

- Epidemiology
- Etiology and pathogenesis
- Neurobiologic model
- Cognitive-behavioral models
- Summary

Etiology and evaluation of the child with weakness

Literature review current through: Jan 2017. | **This topic last updated:** Nov 18, 2015.

- Conversion disorder
- Summary

Approach to the pediatric patient with vision change

Literature review current through: Jan 2017. | **This topic last updated:** Jun 15, 2016.

- Causes of diplopia > Conversion disorder
- Causes of blurry vision > Conversion disorder
- Summary

Somatization: Epidemiology, pathogenesis, clinical features, medical evaluation, and diagnosis

Literature review current through: Jan 2017. | **This topic last updated:** Jan 27, 2016.

- Conversion disorder

- Summary

Psychogenic nonepileptic seizures

Literature review current through: Jan 2017. | **This topic last updated:** Nov 17, 2015.

- Examination findings
- Epidemiology
- Summary and recommendations

Functional movement disorders

Literature review current through: Jan 2017. | **This topic last updated:** Dec 13, 2016.

- Diagnosis and differential
- Underlying psychiatric disorders
- Summary and recommendations

Psychological factors affecting other medical conditions: Clinical features, assessment, and diagnosis

Literature review current through: Jan 2017. | This topic last updated: Nov 10, 2016.

- Conversion disorder
- Summary

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Current Awareness Articles

Below are a selection of articles related to medically unexplained symptoms that were recently added to the healthcare databases.

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk

The classification of conversion disorder (functional neurologic symptom disorder) in ICD and DSM.

Author(s): Levenson, J L; Sharpe, M

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 189-192

Publication Type(s): Journal Article

Abstract: The name given to functional neurologic symptoms has evolved over time in the different editions of the International Classification of Diseases (ICD) and the Diagnostic and Statistical Manual of Mental Disorders (DSM), reflecting a gradual move away from an etiologic conception rooted in hysterical conversion to an empiric phenomenologic one, emphasizing the central role of the neurologic examination and testing in demonstrating that the symptoms are incompatible with recognized neurologic disease pathophysiology, or are internally inconsistent.

Database: Medline

Imaging studies of functional neurologic disorders.

Author(s): Aybek, S; Vuilleumier, P

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 73-84

Publication Type(s): Journal Article

Abstract: Brain imaging techniques provide unprecedented opportunities to study the neural mechanisms underlying functional neurologic disorder (FND, or conversion disorder), which have long remained a mystery and clinical challenge for physicians, as they arise with no apparent underlying organic disease. One of the first questions addressed by imaging studies concerned whether motor conversion deficits (e.g., hysteric paralysis) represent a form of (perhaps unconscious) simulation, a mere absence of voluntary movement, or more specific disturbances in motor control (such as abnormal inhibition). Converging evidence from several studies using different techniques and paradigms has now demonstrated distinctive brain activation patterns associated with functional deficits, unlike those seen in actors simulating similar deficits. Thus, patients with motor FND show consistent hypoactivation of both cortical and subcortical motor pathways, with frequent increases in other brain areas within the limbic system, but no recruitment of prefrontal regions usually associated with voluntary motor inhibition. Other studies point to a dysfunction in sensorimotor integration and agency - related to parietal dysfunction - and abnormal motor planning related to supplementary motor area and prefrontal areas. These findings not only suggest that functional symptoms reflect a genuine brain dysfunction, but also give new insights into how they are produced. However, fewer studies attempted to understand why these symptoms are

produced and linked to potential psychologic or emotional risk/triggering factors. Results from such studies point towards abnormal limbic regulation with heightened emotional arousal and amygdalar activity, potentially related to engagement of defense systems and stereotyped motor behaviors, mediated by medial prefrontal cortex and subcortical structures, including the periaqueductal gray area and basal ganglia. In addition, across different symptom domains, several studies reported abnormal recruitment of ventromedial prefrontal cortex (vmPFC), a region known to regulate emotion appraisal, memory retrieval, and self-reflective representations. The vmPFC might provide important modulatory signals to both cortical and subcortical sensorimotor, visual, and even memory circuits, promoting maladaptive self-protective behaviors based on personal affective appraisals of particular events. A better understanding of such a role of vmPFC in FND may help link how and why these symptoms are produced. Further research is also needed to determine brain activation patterns associated with FND across different types of deficits and different evolution stages (e.g., acute vs. chronic vs. recovered).

Freud's hysteria and its legacy.

Author(s): Kanaan, R A A

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 37-44

Publication Type(s): Journal Article

Abstract: Though Freud was himself interested in neurologic disorders, the model of hysteria he developed - of the repression of painful experiences, and their conversion into physical symptoms - made the disorder psychiatric, as the increasingly complex explanations came to rely on the "meaning" of events, which could not easily be understood neurologically. This evolved to become a prototype for psychiatric illness more broadly, a model which, though challenged by the First World War, enjoyed great success, notably in the USA, dominating psychiatric thinking for most of the 20th century. Concerns about the empiric basis for his ideas latterly led to a rapid decline in their importance, however, exemplified by 1980's "etiologically neutral" DSM-III. Hysteria, now renamed conversion disorder, retained its Freudian explanation for another 30 years, but as psychiatry lost its faith in Freud, so psychiatrists stopped seeing the disorder he had made theirs, and returned it once more to neurology.

Is high hypnotizability a necessary diathesis for pathological dissociation?

Author(s): Dell, Paul F

Source: Journal of trauma & dissociation : the official journal of the International Society for the Study of Dissociation (ISSD); 2017; vol. 18 (no. 1); p. 58-87

Publication Type(s): Journal Article

Abstract: During the 19th century, high hypnotizability was considered to be a form of psychopathology that was inseparable from hysteria. Today, hypnotizability is considered to be a normal trait that has no meaningful relationship with psychopathology. Psychiatric patients generally manifest medium to low hypnotizability. Nevertheless, several psychiatric diagnoses are marked by an unexpectedly large proportion of patients with high hypnotizability. This is especially true of the diagnostic categories that were subsumed by the 19th-century concept of hysteria: dissociative identity disorder, somatization disorder, and complex conversion disorders. These hysteria-related modern diagnoses are also highly dissociative. A review and analysis of the literature regarding the relationship between hypnotizability and dissociation indicates that high hypnotizability is almost certainly a necessary diathesis for the development of a severe dissociative disorder. Such a diathesis has significant implications for (a) the psychiatric nosologies of the American Psychiatric Association and the World Health Organization, (b) the hypnosis field, and (c)

the etiology and construct validity of dissociative identity disorder and other severe dissociative disorders. Specifically, the dissociative disorders (excepting depersonalization disorder, which is not classified as a dissociative disorder by the World Health Organization) are manifestations of hypnotic pathology.

Functional (dissociative) retrograde amnesia.

Author(s): Markowitsch, H J; Staniloiu, A

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 419-445

Publication Type(s): Journal Article

Abstract: Retrograde amnesia is described as condition which can occur after direct brain damage, but which occurs more frequently as a result of a psychiatric illness. In order to understand the amnesic condition, content-based divisions of memory are defined. The measurement of retrograde memory is discussed and the dichotomy between "organic" and "psychogenic" retrograde amnesia is questioned. Briefly, brain damage-related etiologies of retrograde amnesia are mentioned. The major portion of the review is devoted to dissociative amnesia (also named psychogenic or functional amnesia) and to the discussion of an overlap between psychogenic and "brain organic" forms of amnesia. The "inability of access hypothesis" is proposed to account for most of both the organic and psychogenic (dissociative) patients with primarily retrograde amnesia. Questions such as why recovery from retrograde amnesia can occur in retrograde (dissociative) amnesia, and why long-term new learning of episodic-autobiographic episodes is possible, are addressed. It is concluded that research on retrograde amnesia research is still in its infancy, as the neural correlates of memory storage are still unknown. It is argued that the recollection of episodic-autobiographic episodes most likely involves frontotemporal regions of the right hemisphere, a region which appears to be hypometabolic in patients with dissociative amnesia.

Database: Medline

Psychogenic (functional) parkinsonism.

Author(s): Thenganatt, M A; Jankovic, J

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 259-262

Publication Date: 2017

Publication Type(s): Journal Article

Abstract: Psychogenic parkinsonism (PP), although often quite disabling, is one of the least commonly reported subtypes of psychogenic movement disorders. There are certain features that help distinguish PP from idiopathic Parkinson's disease, such as abrupt onset, early disability, bilateral shaking and slowness, nondecremental slowness when performing repetitive movements, voluntary resistance against passive movement without cogwheel rigidity, distractibility, "give-way" weakness, stuttering speech, bizarre gait, and a variety of behavioral symptoms. While the diagnosis of PP is clinical, functional imaging evaluating the integrity of nigrostriatal pathways can help distinguish PP from other types of parkinsonism. PP can coexist in patients with organic parkinsonism, adding to the challenge of making a diagnosis of PP. Being cognizant of the clinical signs of psychogenic movement disorders, including PP, will lead to earlier diagnosis and hopefully improved outcomes.

Stress, childhood trauma, and cognitive functions in functional neurologic disorders.

Author(s): Roelofs, K; Pasman, J

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 139-155

Publication Type(s): Journal Article

Abstract: Conversion disorder (CD) has traditionally been ascribed to psychologic factors such as trauma, stress, or emotional conflict. Although reference to the psychologic origin of CD has been removed from the criteria list in DSM-5, many theories still incorporate CD as originating from adverse events. This chapter provides a critical review of the literature on stressful life events in CD and discusses current cognitive and neurobiologic models linking psychologic stressors with conversion symptomatology. In addition, we propose a neurobiologic stress model integrating those cognitive models with neuroendocrine stress research and propose that stress and stress-induced changes in hypothalamus-pituitary-adrenal (HPA) axis function may result in cognitive alterations, that in turn contribute to experiencing conversion symptoms. Experimental studies indeed suggest that basal as well as stress-induced changes in HPA axis responding lead to alterations in attentional processing in CD. Although those changes are stronger in traumatized patients, similar patterns have been observed in patients who do not report a history of traumatic events. We conclude that, whereas adverse events may play an important role in many cases of CD, a substantial proportion of patients do not report a history of traumatization or recent stressful events. Studies integrating effects of stress on cognitive functioning in CD are scarce. We propose that, instead of focusing research on defining etiologic events in terms of symptom-eliciting events, future research should work towards an integrated mechanistic account, assessing alterations in cognitive and biologic stress systems in an integrated manner in patients with CD. Such an account may not only serve early symptom detection, it might also provide a starting point for better-targeted interventions.

Psychologic theories in functional neurologic disorders.

Author(s): Carson, A; Ludwig, L; Welch, K

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 105-120

Publication Type(s): Journal Article

Abstract: In this chapter we review key psychologic theories that have been mooted as possible explanations for the etiology of functional neurologic symptoms, conversion disorder, and hysteria. We cover Freudian psychoanalysis and later object relations and attachment theories, social theories, illness behavior, classic and operant conditioning, social learning theory, self-regulation theory, cognitive-behavioral theories, and mindfulness. Dissociation and modern cognitive neuroscience theories are covered in other chapters in this series and, although of central importance, are omitted from this chapter. Our aim is an overview with the emphasis on breadth of coverage rather than depth.

Transcranial magnetic stimulation and sedation as treatment for functional neurologic disorders.

Author(s): Nicholson, T R J; Voon, V

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 619-629

Publication Date: 2017

Abstract: Functional neurologic disorder (FND), also known as conversion disorder, is common and often associated with a poor prognosis. It has been relatively neglected by research and as such there is a conspicuous lack of evidence-based treatments. Physical and psychologic therapies are the main treatment modalities, over and above reassurance and sensitive explanation of the diagnosis.

However there are two other historic treatments that have seen a recent resurgence of interest and use. The first is electric stimulation, which was initially pioneered with direct stimulation of nerves but now used indirectly (and therefore noninvasively) in the form of transcranial magnetic stimulation (TMS). The second is (therapeutic) sedation, previously known as "abreaction," where it was mostly used in the context of psychologic investigation and treatment, but now increasingly advocated during rehabilitation as a way to therapeutically demonstrate reversibility of symptoms. This chapter introduces the background of these treatment modalities, their evolution into their current applications before critically evaluating their current evidence base and exploring possible mechanisms of action. It also tentatively suggests when they should be considered in current practice and briefly considers their future potential. In summary there is encouraging preliminary evidence to suggest that both TMS and sedation may be effective treatments for FNDs.

Neurophysiologic studies of functional neurologic disorders.

Author(s): Hallett, M

Source: Handbook of clinical neurology; 2017; vol. 139 ; p. 61-71

Publication Type(s): Journal Article

Abstract: Functional neurologic disorders are largely genuine and represent conversion disorders, where the dysfunction is unconscious, but there are some that are factitious, where the abnormality is feigned and conscious. Malingering, which can have the same manifestations, is similarly feigned, but not considered a genuine disease. There are no good methods for differentiating these three entities at the present time. Physiologic studies of functional weakness and sensory loss reveal normal functioning of primary motor and sensory cortex, but abnormalities of premotor cortex and association cortices. This suggests a top-down influence creating the dysfunction. Studies of functional tremor and myoclonus show that these disorders utilize normal voluntary motor structures to produce the involuntary movements, again suggesting a higher-level abnormality. Agency is abnormal and studies shows that dysfunction of the temporoparietal junction may be a correlate. The limbic system is overactive and might initiate involuntary movements, but the mechanism for this is not known. The limbic system would then be the source of top-down dysfunction. It can be speculated that the involuntary movements are involuntary due to lack of proper feedforward signaling.

Conversion disorder: A systematic review of current terminology

Author(s): Ding J.M.; Kanaan R.A.A.

Source: General Hospital Psychiatry; Mar 2017; vol. 45 ; p. 51-55

Publication Type(s): Journal: Article

Abstract: Objective It has been argued that the label given to unexplained neurological symptoms is an important contributor to their often poor acceptance, and there has been recent debate on proposals to change the name from conversion disorder. There have been multiple studies of layperson and clinician preference and this article aimed to review these. Design Multiple databases were searched using terms including "conversion disorder" and "terminology", and relative preferences for the terms extracted. Results Seven articles were found which looked at clinician or layperson preferences for terminology for unexplained neurological symptoms. Most neurologists favoured terms such as "functional" and "psychogenic", while laypeople were comfortable with "functional" but viewed "psychogenic" as more offensive; "non-epileptic/organic" was relatively popular with both groups. Conclusions "Functional" is a term that is relatively popular with both clinicians and the public. It also meets more of the other criteria proposed for an acceptable label

than other popular terms - however the views of neither psychiatrists nor actual patients with the disorder were considered. Copyright © 2016 Elsevier Inc.

An evaluation of a new tool to aid judgements of credibility in the medico-legal setting

Author(s): Akehurst L.; Easton S.; Fuller E.; Drane G.; Kuzmin K.; Litchfield S.

Source: Legal and Criminological Psychology; Feb 2017; vol. 22 (no. 1); p. 22-46

Publication Date: Feb 2017

Publication Type(s): Journal: Article

Abstract: Purpose: Clinical psychologists and other health professionals are often requested to act as expert witnesses in Court. They are required to assess, and report upon, the reliability of the accounts of physical and psychological symptoms made by their clients. This study investigated the effectiveness of a checklist drawing upon relevant literature on lying and malingering to aid the detection of exaggeration of physical symptoms. Method: Sixty-four participants were cast as interviewers and assigned to either a 'checklist' or 'no checklist' condition. Another 64 volunteers were assigned to either a 'truth teller' or 'malingerer' role and, after undergoing a cold pressor procedure, were interviewed about their experience. The interviewers with a checklist drawn from the literature were asked to rate the presence of 28 checklist items on 5-point Likert scales and to indicate whether or not they believed their interviewee was truthful or exaggerating his or her symptoms. The interviewers without the checklist were asked to simply indicate whether their interviewee was truthful or exaggerating. Results: Evaluators who were not given the checklist did not classify their interviewees at a level significantly better than chance. Those using the checklist achieved an overall hit rate of 70%. Signal detection analysis supported the finding that those with the checklist showed greater discriminability. Nine checklist items significantly discriminated between truth tellers and malingerers. Furthermore, the total checklist score was significantly higher for exaggerated accounts than for truthful accounts. Conclusions: Results suggest that a checklist based on the literatures into lying and malingering warrants further investigation. Such a tool would be useful as an aid for expert witnesses called to provide informed opinion on the likelihood that a claimant is exaggerating, malingering or otherwise misrepresenting difficulties. Copyright © 2015 The British Psychological Society

An unusual cause of cervical kyphosis

Author(s): Raj M.S.; Schwab J.H.

Source: Spine Journal; Feb 2017; vol. 17 (no. 2)

Publication Date: Feb 2017

Publication Type(s): Journal: Article

Abstract: Background Context Acute fixed cervical kyphosis may be a rare presentation of conversion disorder, psychogenic dystonia, and potentially as a side effect from typical antipsychotic drugs. Haldol has been associated with acute dystonic reactions. In some cases, rigid deformities ensue. We are reporting a case of a fixed cervical kyphosis after the use of Haldol. Purpose To present a case of a potential acute dystonic reaction temporally associated with Haldol ingestion leading to fixed cervical kyphosis. Study design This is a case report. Methods A patient diagnosed with bipolar disorder presented to the emergency room several times with severe neck pain and stiffness. The neck appeared fixed in flexion with extensive osteophyte formation over a 3-month period. Results The patient's condition was resolved by a posterior-anterior-posterior surgical approach. It corrected the patient's cervical curvature from 88degree to 5degree. Conclusions: Acute

dystonic reactions have the potential to apply enough pressure on bone to cause rapid osteophyte formation.

How do hospital doctors manage patients with medically unexplained symptoms: a qualitative study of physicians.

Author(s): Warner, Alex; Walters, Kate; Lamahewa, Kethakie; Buszewicz, Marta

Source: Journal of the Royal Society of Medicine; Feb 2017; vol. 110 (no. 2); p. 65-72

Publication Type(s): Journal Article

Abstract: Objective Medically unexplained symptoms are a common presentation in medical practice and are associated with significant morbidity and high levels of service use. Most research exploring the attitudes and training of doctors in treating patients with unexplained symptoms has been conducted in primary care. This study aims to explore the ways in which doctors working in secondary care approach and manage patients with medically unexplained symptoms. Design A qualitative study using in-depth interviews and thematic analysis. Setting Three hospitals in the North Thames area. Participants Twenty consultant and training-grade physicians working in cardiology, gastroenterology, rheumatology and neurology. Main outcome measure Physicians' approach to patients with medically unexplained symptoms and their views on managing these patients. Results There was considerable variation in how the physicians approached patients who presented with medically unexplained symptoms. Investigations were often ordered without a clear rationale and the explanations given to patients when results of investigations were normal were highly variable, both within and across specialties. The doctor's level of experience appeared to be a more important factor in their investigation and management strategies than their medical specialty. Physicians reported little or no formal training in how to manage such presentations, with no apparent consistency in how they had developed their approach. Doctors described learning from their own experience and from senior role models. Organisational barriers were identified to the effective management of these patients, particularly in terms of continuity of care. Conclusions Given the importance of this topic, there is a need for serious consideration as to how the management of patients with medically unexplained symptoms is included in medical training and in the planning and delivery of services.

Negotiating explanations: doctor-patient communication with patients with medically unexplained symptoms-a qualitative analysis.

Author(s): den Boeft, Madelon; Huisman, Daniëlle; Morton, LaKrista; Lucassen, Peter; van der Wouden, Johannes C; Westerman, Marjan J; van der Horst, Henriëtte E; Burton, Christopher D

Source: Family practice; Feb 2017; vol. 34 (no. 1); p. 107-113

Publication Type(s): Journal Article

Abstract: Patients with medically unexplained physical symptoms (MUPS) seek explanations for their symptoms, but often find general practitioners (GPs) unable to deliver these. Different methods of explaining MUPS have been proposed. Little is known about how communication evolves around these explanations. To examine the dialogue between GPs and patients related to explanations in a community-based clinic for MUPS. We categorized dialogue types and dialogue outcomes. Patients were ≥18 years with inclusion criteria for moderate MUPS: ≥2 referrals to specialists, ≥1 functional syndrome/symptoms, ≥10 on the Patient Health Questionnaire-15 and GP's judgement that symptoms were unexplained. We analysed transcripts of 112 audio-recorded consultations (39 patients and 5 GPs) from two studies on the Symptoms Clinic Intervention, a consultation intervention for MUPS in primary care. We used constant comparative analysis to code and classify dialogue types and outcomes. We extracted 115 explanation sequences. We identified four

dialogue types, differing in the extent to which the GP or patient controlled the dialogue. We categorized eight outcomes of the sequences, ranging from acceptance to rejection by the patient. The most common outcome was holding (conversation suspended in an unresolved state), followed by acceptance. Few explanations were rejected by the patient. Co-created explanations by patient and GP were most likely to be accepted. We developed a classification of dialogue types and outcomes in relation to explanations offered by GPs for MUPS patients. While it requires further validation, it provides a framework, which can be used for teaching, evaluation of practice and research.

Munchausen syndrome by genetics: Next-generation challenges for clinicians.

Author(s): Zittel, Simone; Lohmann, Katja; Bauer, Peter; Klein, Christine; Münchau, Alexander

Source: Neurology; Feb 2017

Publication Date: Feb 2017

Publication Type(s): Journal Article

Available in full text at Neurology - from Ovid

Database: Medline

The bay area verbal learning test (BAVLT): Normative data and the effects of repeated testing, simulated malingering, and traumatic brain injury

Author(s): Woods D.L.; Wyma J.M.; Herron T.J.; William Yund E.

Source: Frontiers in Human Neuroscience; Jan 2017; vol. 10

Publication Date: Jan 2017

Publication Type(s): Journal: Article

Abstract: Verbal learning tests (VLTs) are widely used to evaluate memory deficits in neuropsychiatric and developmental disorders. However, their validity has been called into question by studies showing significant differences in VLT scores obtained by different examiners. Here we describe the computerized Bay Area Verbal Learning Test (BAVLT), which minimizes inter-examiner differences by incorporating digital list presentation and automated scoring. In the 10-min BAVLT, a 12-word list is presented on three acquisition trials, followed by a distractor list, immediate recall of the first list, and, after a 30-min delay, delayed recall and recognition. In Experiment 1, we analyzed the performance of 195 participants ranging in age from 18 to 82 years. Acquisition trials showed strong primacy and recency effects, with scores improving over repetitions, particularly for mid-list words. Inter-word intervals (IWIs) increased with successive words recalled. Omnibus scores (summed over all trials except recognition) were influenced by age, education, and sex (women outperformed men). In Experiment 2, we examined BAVLT test-retest reliability in 29 participants tested with different word lists at weekly intervals. High intraclass correlation coefficients were seen for omnibus and acquisition scores, IWIs, and a categorization index reflecting semantic reorganization. Experiment 3 examined the performance of Experiment 2 participants when feigning symptoms of traumatic brain injury. Although 37% of simulated malingerers showed abnormal ($p < 0.05$) omnibus z-scores, z-score cutoffs were ineffective in discriminating abnormal malingerers from control participants with abnormal scores. In contrast, four malingering indices (recognition scores, primacy/recency effects, learning rate across acquisition trials, and IWIs) discriminated the two groups with 80% sensitivity and 80% specificity. Experiment 4 examined the performance of a small group of patients with mild or severe TBI. Overall, both patient groups performed within the normal range, although significant performance deficits were seen in some patients. The BAVLT improves

the speed and replicability of verbal learning assessments while providing comprehensive measures of retrieval timing, semantic organization, and primacy/recency effects that clarify the nature of performance.

A propos de 6 cas de purpura lineaire des bras de l'enfant : une presentation clinique stereotypeeA stereotypical clinical presentation of childhood linear purpura of the arms: Analysis of six cases

Author(s): Hosteing S.; Uthurriague C.; Mazereeuw-Hautier J.; Boralevi F.

Source: Archives de Pediatrie; Jan 2017; vol. 24 (no. 1); p. 45-51

Publication Type(s): Journal: Article

Abstract: Among causes of childhood purpura, other- or self-induced mechanical purpura, such as factitious purpura, needs to be considered. This cause is unfamiliar to pediatricians, usually compromising early diagnosis. We report on the cases of six children, seen between 1998 and 2014 at the Toulouse and Bordeaux Departments of Dermatology, presenting with a stereotypical linear purpura on the arms. All were females, aged 6-14 years. One patient had a psychiatric history, whereas the others were undergoing a stressful time period. All had several relapses and diagnosis was delayed in all. The patients presented with multiple oval or square purpuric macules, forming a discontinuous linear band. Some patients reported functional discomfort such as pain or pruritus. Lesions were always located on the arms and sometimes on other areas of the body. Biological assessments were normal and there was no vasculitis at skin histology. We retained the diagnosis of induced mechanical purpura. Psychological support was offered to four patients. One of them declared that the lesions were induced by classmates using suction. Another child declared that she caused the lesions herself, without explaining the mechanism. Outcome was favorable in five children (one was lost to follow-up), 1-4 years after diagnosis. In conclusion, induced mechanical purpura in children, although rarely described in the medical literature, must be kept in mind. Investigations should be carried out in cases with uncertain diagnosis. Underlying psychological distress should be sought. Copyright © 2016 Elsevier Masson SAS

Postoperative conversion disorder presenting as inspiratory stridor and hemiparesis in a pediatric patient

Author(s): Nelson E.J.; Wu J.Y.

Source: American Journal of Case Reports; Jan 2017; vol. 18 ; p. 60-63

Publication Type(s): Journal: Article

Abstract: Objective: Rare co-existance of disease or pathology Background: Postoperative conversion disorder is rare and has been reported. The diagnosis is usually made after all major organic causes have been ruled out. Case Report: We describe a case of a 13-year-old female who presented in the post-anesthesia care unit with acute-onset inspiratory stridor and unresponsiveness to verbal or painful stimuli after receiving a general anesthetic for upper endoscopy. Later in the post-anesthesia care unit, she presented with acute-onset right hemiplegia and sensory loss. She was first evaluated for causes of her stridor and unresponsiveness. The evaluation revealed paradoxical vocal cord movement, and all laboratory test values were normal. For her hemiplegia and sensory loss, she was evaluated for stroke with head MRI and CT scans, which were normal. Conclusions: After extensive workup and consideration of multiple etiologies for her presenting signs and symptoms, the most likely diagnosis was conversion disorder. Copyright © Am J Case Rep, 2017.

Malingering mental disorders: Clinical assessment

Author(s): Tracy D.K.; Rix K.J.B.

Source: Advances in Psychiatric Treatment; Jan 2017; vol. 23 (no. 1); p. 27-35

Publication Type(s): Journal: Article

Abstract: Malingering is the dishonest and intentional production of symptoms. It can cause considerable difficulty as assessment runs counter to normal practice, and it may expose clinicians to testing medicolegal situations. In this first part of a two-article review, we explore types of psychiatric malingering and their occurrence across a range of common and challenging scenarios, discussing presentations that may help delineate true from feigned illness. A framework is provided for undertaking an assessment where malingering is suspected, including recommendations on clinician approach, the use of collateral information, and self-evaluation of biases. The uses, and limitations, of psychometric tests are discussed, including 'general', malingering-specific and 'symptom validity' scales. Copyright © The Royal College of Psychiatrists 2017.

Cross-Cultural Feigning Assessment: A Systematic Review of Feigning Instruments Used With Linguistically, Ethnically, and Culturally Diverse Samples

Author(s): Nijdam-Jones A.; Rosenfeld B.

Source: Psychological Assessment; Jan 2017

Publication Date: Jan 2017

Publication Type(s): Journal: Article In Press

Abstract: The cross-cultural validity of feigning instruments and cut-scores is a critical concern for forensic mental health clinicians. This systematic review evaluated feigning classification accuracy and effect sizes across instruments and languages by summarizing 45 published peer-reviewed articles and unpublished doctoral dissertations conducted in Europe, Asia, and North America using linguistically, ethnically, and culturally diverse samples. The most common psychiatric symptom measures used with linguistically, ethnically, and culturally diverse samples included the Structured Inventory of Malingered Symptomatology, the Miller Forensic Assessment of Symptoms Test, and the Minnesota Multiphasic Personality Inventory (MMPI). The most frequently studied cognitive effort measures included the Word Recognition Test, the Test of Memory Malingering, and the Rey 15-item Memory test. The classification accuracy of these measures is compared and the implications of this research literature are discussed. (PsycINFO Database Record Copyright © 2017 APA, all rights reserved).

Factitious hyperkalemia in hematologic disorders

Author(s): Labadi A.; Miseta A.; Kovacs G.L.; Nagy A.; Szomor A.

Source: Scandinavian Journal of Clinical and Laboratory Investigation; Jan 2017; vol. 77 (no. 1); p. 66-72

Publication Type(s): Journal: Letter

Organic vs. functional neurological disorders: The role of childhood psychological trauma

Author(s): Karatzias T.; Howard R.; Power K.; Socherel F.; Heath C.; Livingstone A.

Source: Child Abuse and Neglect; Jan 2017; vol. 63 ; p. 1-6

Publication Type(s): Journal: Article

Abstract: Although the relationship between psychological trauma and medically unexplained symptoms (MUS) is well established, this relationship is less well understood in people with medically unexplained neurological symptoms. In the present study, we set out to compare people with functional neurological disorders, and organic neurological disorders, in terms of childhood and adulthood traumatic events, traumatic stress, emotional dysregulation and symptoms of depression and anxiety. We have hypothesised that those with functional neurological disorders would be more likely to report childhood and adulthood traumatic life events, traumatic symptomatology, emotional dysregulation and symptoms of anxiety and depression, compared to those with organic neurological disorders. Sample consisted of a consecutive series of people with functional neurological disorders and with organic neurological disorders (n = 82) recruited from a hospital in Scotland. Participants completed measures of life events, traumatic stress, emotional regulation, anxiety and depression. The two groups were found to significantly differ in relation to all measures, with the MUS group being more likely to report childhood and adulthood life events, more severe emotional dysregulation, traumatic stress and symptoms of anxiety and stress. Logistic regression analysis revealed that exposure to childhood traumatic life events, specifically childhood sexual abuse, and childhood physical neglect, were the only factors which were significantly associated with membership of the medically unexplained neurological symptoms group. Although further research is required to confirm our findings, our results suggest that identifying and addressing the impact of childhood trauma, may alleviate distress and aid recovery from functional neurological disorders.

When a duck is not a duck: non-organic bases for aphasia and dementia

Author(s): Jokel R.; Wolf U.

Source: Aphasiology; Jan 2017; vol. 31 (no. 1); p. 100-121

Publication Type(s): Journal: Article

Abstract: Background: There are numerous reports in the literature describing cases of non-organic speech and language disorders. Most reports do not contain specific diagnoses (other than a "psychogenic" disorder); however, establishing which of the many psychogenic disorders are at play may be important for management and prognosis. This paper is inspired by 10 patients who presented to speech-language pathology (SLP) services with speech, language and/or cognitive impairments incongruent with organically based disorders. Non-organic symptoms are neurological complaints thought to be incompatible with recognised neurological or medical conditions. The patients, discussed here, presented with abnormal speech (stuttering, backward speech), language (aphasia) and/or cognition (dementia) that were ultimately reconciled in the psychiatric context. Aims: The aim is to provide empirical and clinical evidence that supports multidisciplinary assessment of patients who present with speech, language and cognitive impairments that do not seem to have a clear organic basis. The clinical data are discussed in the context of "non-organic" disorders and include exploration of relevant assessment and management issues. Methods and Procedures: Clinical files of 10 patients diagnosed with psychogenic disorders were retrospectively reviewed and evaluated on several factors contributing to their profiles. They included analysis of speech, language, neuroimaging, social and medical histories and psychological stressors reported by each patient. Outcomes and Results: Based on assessment results, a number of psychiatric conditions were identified, including conversion, factitious disorder, malingering and Ganser syndrome. Performance on language and cognitive tests was inconsistent with neurological

disorders. Each patient appeared to be dealing with some sort of emotional conflict (e.g., unexpected obligation to take care of disabled parents or returning to an extremely stressful workplace). While those with the diagnosis of malingering, factitious or conversion disorders did not show imaging abnormalities, patients with abnormal imaging were initially diagnosed with Ganser syndrome and were found on a follow-up assessment to exhibit signs suggestive of behavioural variant fronto-temporal dementia. Conclusions: The literature suggests that as many as 30-60% of patients with seemingly non-organic symptoms end up with a neurological diagnosis that explains their initial somatic complaints, a proportion large enough to treat all non-organic disorders seriously. In addition to SLP, successful management of somatic communication disorders requires a multidisciplinary approach and an understanding that they may represent an alternative mode of communicating socially unacceptable feelings or thoughts. Additionally, regardless of questionable veracity of presenting symptoms, presence of abnormal neuroimaging findings should raise concerns of a neurodegenerative disorder.

Medically unexplained symptoms: the person, the symptoms and the dialogue.

Author(s): Houwen, Juul; Lucassen, Peter L B J; Stappers, Hugo W; Assendelft, Pim J J; van Dulmen, Sandra; Olde Hartman, Tim C

Source: Family practice; Jan 2017

Publication Type(s): Journal Article

Abstract: Many general practitioners (GPs) find the care for patients with medically unexplained symptoms (MUS) challenging. The patients themselves are often not satisfied with the care they receive. The aim of this study is to explore what patients with MUS expect from their GP by looking at relevant communication elements in consultations as identified by patients. We video-recorded everyday consultations with GPs and asked the GPs immediately after the consultation whether MUS were presented. The patients in these MUS consultations were asked to reflect on the consultation during a semi-structured interview while watching a recording of their own MUS consultation. The interviews were analysed qualitatively according to the principles of constant comparative analysis. Of the 393 video-recorded consultations, 43 concerned MUS. All MUS patients said that they wanted to be taken seriously. According to the patients, their feeling of being taken seriously is enhanced when the GP: (i) pays empathic attention to them as individuals, meaning that the GP knows their personal circumstances and has an open and empathic approach, (ii) ensures a good conversation by treating the patient as an equal partner and (iii) is attentive to their symptoms by exploring these symptoms in depth and by acting on them. Like chronic patients, patients with MUS value a personalised approach in which GPs pay attention to patients' personal circumstances, to proper somatic management of their symptoms and to a proper conversation in which they are treated as equal partners. Use of these basic consultation skills may greatly improve care of MUS patients.

Medically unexplained symptoms and general practitioners: a comprehensive survey about their attitudes, experiences and management strategies.

Author(s): Sirri, Laura; Grandi, Silvana; Tossani, Eliana

Source: Family practice; Jan 2017

Publication Type(s): Journal Article

Abstract: Medically unexplained symptoms (MUS) are common in primary care and are one of the most challenging clinical encounters for general practitioners (GPs). To assess GPs' clinical

experience with MUS and its relationship with their gender, age and length of practice. Four hundred and thirty-three Italian GPs were invited to complete a questionnaire encompassing the following MUS-related features: workload, cognitive and emotional responses, management strategies, attitudes towards psychological interventions, sources of education and educational needs. A total of 347 GPs (80.1%) participated in the study. About seven out of ten physicians spent 'much' or 'very much' time and energy for MUS during their daily practice. Fear of neglecting a medical disease was the most frequent (59.1%) response to MUS. Providing reassurance and support (73.8%) and listening to the patient (69.2%) were the most frequent management strategies. More than half of GPs rated psychological interventions as 'much' or 'very much' useful for MUS. However, only a third of GPs were well informed about the role of psychologists in MUS management. The main sources of education about MUS were scientific papers and continuing medical education courses. Most of GPs (77.5%) needed further education about MUS. GPs' younger age and lower length of practice were significantly associated with negative emotional responses to MUS. The introduction of guidelines for MUS in Italian primary care settings would promote a collaborative clinical approach to MUS and more formal training on this topic.

A Review of Psychopharmacological Interventions Post-Disaster to Prevent Psychiatric Sequelae.

Author(s): Birur, Badari; Math, Suresh Bada; Fargason, Rachel E

Source: Psychopharmacology bulletin; Jan 2017; vol. 47 (no. 1); p. 8-26

Publication Type(s): Journal Article Review

Abstract: Disasters are mega-scale catastrophic events which cause trauma and mental health sequelae. A review of early pharmacological interventions for the prevention of psychiatric disorders following disasters is sorely needed. A literature search of "Psychiatric Sequelae AND Disasters", "Disaster mental health/Disaster psychiatry", "Psychotropics AND Disasters", and "Drug therapy AND Disasters" yielded 213 articles, 38 of which were included in the review. Common post-disaster psychiatric conditions are: posttraumatic stress disorder (PTSD), depressive and anxiety disorders, substance use disorders and medically-unexplained psychological symptoms. Early psychopharmacological interventions to prevent PTSD provide promising evidence for hydrocortisone in medically ill trauma populations. Less robust benefits were noted for other pharmacological interventions. No reported trials have explored prevention of depression or other common post-disaster psychiatric conditions. Hydrocortisone shows promise in preventing and reducing the psychiatric sequelae of PTSD following disasters. Further evaluation of hydrocortisone and other potentially beneficial psychopharmacological interventions are needed.

Functional visual loss.

Author(s): Dhanji, Shanil; Lawlor, Mitchell

Source: Current opinion in neurology; Jan 2017

Publication Type(s): Journal Article

Abstract: Functional visual loss (FVL) is a syndrome in which subjective visual parameters are inconsistent with objective measures. Recent advances in understanding the pathophysiology and management of functional disorders and FVL will be explored. FVL requires a positive diagnosis of normal function through clinical examination or visual electrophysiology. A substantial proportion of patients have an underlying organic illness that needs to be identified and treated. Recent updates in Diagnostic and Statistical Manual of Mental Disorders-5 reflect the observation that many patients with FVL do not have a recognizable psychological association. A small number of functional

neuroimaging studies suggest that there may be a stress-mediated prefrontal suppression of visual awareness. There is limited evidence to guide the treatment of FVL; education and reassurance remain first line, followed by cognitive behavioral therapy and pharmacotherapy for psychiatric comorbidities. FVL remains a poorly studied and understood condition. Recent advances in the understanding and management of functional symptoms more generally may aid in advancing the understanding of this condition.

Symptoms and the body: Taking the inferential leap.

Author(s): Van den Bergh, Omer; Witthöft, Michael; Petersen, Sibylle; Brown, Richard J

Source: Neuroscience and biobehavioral reviews; Jan 2017; vol. 74 ; p. 185-203

Publication Date: Jan 2017

Publication Type(s): Journal Article Review

Abstract: The relationship between the conscious experience of physical symptoms and indicators of objective physiological dysfunction is highly variable and depends on characteristics of the person, the context and their interaction. This relationship often breaks down entirely in the case of "medically unexplained" or functional somatic symptoms, violating the basic assumption in medicine that physical symptoms have physiological causes. In this paper, we describe the prevailing theoretical approach to this problem and review the evidence pertaining to it. We then use the framework of predictive coding to propose a new and more comprehensive model of the body-symptom relationship that integrates existing concepts within a unifying framework that addresses many of the shortcomings of current theory. We describe the conditions under which a close correspondence between the experience of symptoms and objective physiology might be expected, and when they are likely to diverge. We conclude by exploring some theoretical and clinical implications of this new account.

The Specificity of Health-Related Autobiographical Memories in Patients With Somatic Symptom Disorder.

Author(s): Walentynowicz, Marta; Raes, Filip; Van Diest, Ilse; Van den Bergh, Omer

Source: Psychosomatic medicine; Jan 2017; vol. 79 (no. 1); p. 43-49

Publication Type(s): Journal Article

Abstract: Patients with somatic symptom disorder (SSD) have persistent distressing somatic symptoms that are associated with excessive thoughts, feelings, and behaviors. Reduced autobiographical memory specificity (rAMS) is related to a range of emotional disorders and is considered a vulnerability factor for an unfavorable course of pathology. The present study investigated whether the specificity of health-related autobiographical memories is reduced in patients with SSD with medically unexplained dyspnea complaints, compared with healthy controls. Female patients with SSD (n = 30) and matched healthy controls (n = 24) completed a health-related Autobiographical Memory Test, the Beck Depression Inventory, the Ruminative Response Scale, and rumination scales concerning bodily reactions. Depressive symptoms and rumination were assessed because both variables previously showed associations with rAMS. Patients with SSD recalled fewer specific ($F(1,52) = 13.63$, $p = .001$) and more categoric ($F(1,52) = 7.62$, $p = .008$) autobiographical memories to health-related cue words than healthy controls. Patients also reported higher levels of depressive symptoms and rumination (all $t > 3.00$, $p < .01$). Importantly, the differences in memory specificity were independent of depressive symptoms and trait rumination. The present study extends findings on rAMS to a previously unstudied sample of patients with SSD. Importantly, the presence of rAMS could not be explained by increased levels of depressive symptoms and

rumination. We submit that rAMS in this group reflects how health-related episodes and associated symptoms are encoded in memory.

Telemedicine vs. in-person delivery of intensive short-term dynamic psychotherapy for patients with medically unexplained pain: A 12-month randomized, controlled trial.

Author(s): Chavooshi, Behzad; Mohammadkhani, Parvaneh; Dolatshahee, Behrouz

Source: Journal of telemedicine and telecare; Jan 2017; vol. 23 (no. 1); p. 133-141

Publication Type(s): Journal Article

Abstract: Introduction This study examined the effectiveness of telemedicine in providing psychotherapy to patients with medically unexplained pain (MUP) who may not have access to in-person treatment. The impact of Internet-delivered intensive short-term dynamic psychotherapy (ID-ISTDP) was investigated for MUP via video teleconferencing (Skype™). Methods A randomized, controlled trial of ISTDP, an evidence-based intervention for MUP, was conducted to compare delivery modalities on variations in MUP symptoms. Eighty-one participants with MUP were randomized to either ID-ISTDP (n = 39) or in-person ISTDP (n = 42). Outcome variables included the Numeric Pain Rating Scale, Depression Anxiety Stress Scale-21, Emotion Regulation Questionnaire, Mindful Attention Awareness Scale and the Quality of Life Inventory. In addition, exploratory analyses were used to examine acceptability, satisfaction and compliance in both conditions. Participants were assessed prior to intervention, immediately following the intervention, and 12 months after. Results In the intention-to-treat analysis, in-person ISTDP participants had significantly lower pain intensity than ID-ISTDP participants, both immediately following the intervention (d = 0.97) and at the 12-month follow-up (d = 0.82). Moreover, there were significant decreases in depression, anxiety and stress as well as a greater increase in emotion regulation functioning, mindfulness and quality of life observed in the in-person ISTDP group at the end of the intervention and 12 months after the treatment when compared to the ID-ISTDP group. Participants rated both treatment conditions as equally credible and satisfying. Conclusion ISTDP seems most effective when delivered in person in treating MUP patients with highly comorbid conditions with benefits maintained over 12 months.

Course of psychotic symptoms, depression and global functioning in persons at clinical high risk of psychosis: Results of a longitudinal observation study over three years focusing on both converters and non-converters.

Author(s): Hengartner, Michael P; Heekeren, Karsten; Dvorsky, Diane; Walitza, Susanne; Rössler, Wulf; Theodoridou, Anastasia

Source: Schizophrenia research; Jan 2017

Publication Type(s): Journal Article

Abstract: The aim of this study was to test the validity of the CHR state by focusing on the course of psychosis spectrum symptoms, depression and global functioning in converters and non-converters. A total of 188 CHR-positive subjects (60.2% men) aged between 13 and 35years (mean=20.5) at study outset were assessed five times (t0-t4) over a total observation period of 36months. Conversion to manifest psychosis was defined according to ICD-10 criteria for schizophrenia (F20) or brief psychotic disorder (F23). Measures of positive and negative symptoms were assessed with the Structured Interview for Prodromal Syndromes (SIPS), depression with the Calgary Depression Scale (CDS), and global functioning with the Global Assessment of Functioning Scale (GAF). Converters scored higher over time on all SIPS scales apart from grandiosity (Cohen's d: 0.5-0.7; all p<0.001), higher on the CDS (d=0.43, p=0.001) and lower on the GAF (d=0.69, p<0.001) than did non-converters. Positive and negative symptoms as well as depression were most severe at study outset

(t0) and then declined sharply following a linear function over the three-year observation period (t1-t4) across groups (all linear contrasts p<0.001). In conclusion, converters showed significantly more psychopathological symptoms and poorer functioning before crossing the diagnostic threshold for manifest psychosis. CHR-subjects who convert to manifest psychosis during follow-up appear to be recovering from illness rather than becoming ill. Major issues involve the poor discrimination of CHR state and psychosis as well as the dichotomous definition of both at-risk and disease states. Further examination in other CHR-samples is warranted.

Altered functional connectivity of interoception in illness anxiety disorder.

Author(s): Grossi, Dario; Longarzo, Mariachiara; Quarantelli, Mario; Salvatore, Elena; Cavaliere, Carlo; De Luca, Paolofabrizio; Trojano, Luigi; Aiello, Marco

Source: Cortex: A Journal Devoted to the Study of the Nervous System & Behavior; Jan 2017; vol. 86 ; p. 22-32

Publication Type(s): Academic Journal

Abstract: Interoception collects all information coming from the body and is sustained by several brain areas such as insula and cingulate cortex. Here, we used resting-state functional magnetic resonance imaging to investigate functional connectivity (FC) of networks implied in interoception in patients with Illness anxiety disorders (IADs). We observed significantly reduced FC between the left extrastriate body area (EBA) and the paracentral lobule compared to healthy controls. Moreover, the correlation analysis between behavioural questionnaires and ROI to ROI FC showed that higher levels of illness anxiety were related to hyper-connectivity between EBA and amygdala and hippocampus. Scores on a questionnaire for interoceptive awareness were significantly correlated with higher FC between right hippocampus and nucleus accumbens bilaterally, and with higher connectivity between left anterior cingulate cortex (ACC) and left orbitofrontal cortex (OFC). Last, patients showed increased interoceptive awareness, measured by Self-Awareness Questionnaire (SAQ), and reduced capability in recognizing emotions, indicating inverse correlation between interoception and emotional awareness. Taken together our results suggested that, in absence of structural and micro-structural changes, patients with IADs show functional alteration in the neural network involved in the self-body representation; such functional alteration might be the target of possible treatments.

Exercise: Sensitivity and Specificity

Sensitivity:
If a person has a disease, how often will the test be positive (true positive rate)?

If the test is highly sensitive and the test result is negative you can be nearly certain that they don't have disease.

Specificity:
If a person does not have the disease how often will the test be negative (true negative rate)?

If the test result for a highly specific test is positive you can be nearly certain that they actually have the disease.

Quick Quiz:

1. **A very sensitive test, when negative, helps you:**
   a: Rule-in disease
   b: Rule-out disease
   c: Confuse medical students
   d: Save money

2. **A test which is highly specific, when positive, helps you:**
   a: Rule-in disease
   b: Rule-out disease
   c: Confuse medical students
   d: Save money

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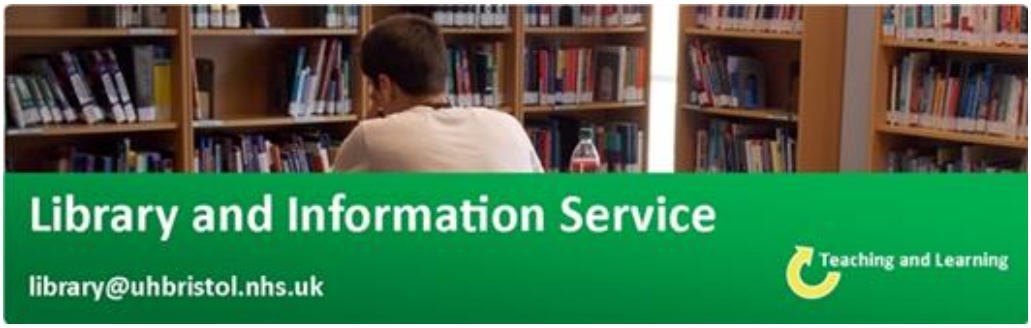
Answers: 1b; 2a



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