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## Mental Disorder or Medical Disorder? Clues for Differential Diagnosis and Treatment Planning

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A wide range of medical conditions can directly cause psychiatric symptoms, precipitate mental status change in psychologically and physiologically predisposed patients, and exacerbate ongoing psychiatric difficulties (Rao, 2008). Mental status change may often co-occur with telltale signs and symptoms of a medical illness. In some cases, alterations in behavior or personality or mood and perception may be one of the earliest indicators of a medical illness and may precede the more obvious signs and symptoms of that illness by months or years (Skuster, Digre, & Corbett, 1992).

Here, we define a mental disorder as a psychiatric disorder that is not caused, either in whole or in part, by one or more clearly identifiable medical conditions. For the purposes of this article, a medical condition encompasses medical illness and disease as well as the effects of medical intervention and substances on the development, maintenance and worsening of psychiatric complaints and symptoms, and other changes in mental status. Signs refer to observable and relatively objective aspects of a patient's clinical presentation and symptoms refer to subjective difficulties reported by the patient or others but are not directly observable or clearly verifiable (Ovsiew, 2008).

Medical conditions can mimic symptoms associated with a broad range of DSM-IV-TR Axis I clinical syndromes, notably anxiety, mood (including bipolar disorder), psychotic, somatoform, eating, dissociative and impulse disorders. They may also masquerade as seemingly benign adjustment problems (Kaplan, 2009). Some mental disorders, notably major

### Summary

A wide range of medical conditions can directly cause psychiatric symptoms, precipitate mental status change in psychologically and physiologically predisposed persons, and worsen ongoing psychiatric difficulties. This article reviews clues from demographic information, family and personal history, and mental status which may help distinguish a mental disorder from one or more medical conditions that might simulate a mental condition. This paper also identifies individuals at elevated risk for a medical basis to their psychiatric presentation.

### Keywords

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depression and eating disorders, confer increased risk for significant medical complications which, in turn, may aggravate a patient's mental health status (Glassman, Shapiro, Ford, Culpepper & Finkel, 2003). Moreover, patients with a major mental illness are at significantly elevated risk for early mortality from a variety of co-morbid medical conditions. It is estimated that rates of serious co-occurring medical illness are two to three times greater than in the general population (Parks, Swinford & Stuve, 2010).

From five to forty percent of mental health patients are diagnosed with a medical condition that is a sufficient explanation for their psychiatric difficulties (Allen, Fauman & Morin, 1995). As well, as many as twenty five percent of individuals with a mental disorder have a medical condition which has exacerbated their psychiatric symptoms (Christenson, Grace & Byrd, 2009). Medical conditions can be easily mistaken for mental disorders due to significant overlap in symptoms between mental disorders and medical illness. For example, common symptoms may include apathy, irritability, fatigue, lassitude and malaise, weight loss, sleep disturbance, decreased concentration, forgetfulness, pain, and other somatic complaints. In addition, mental disorders and medical conditions can co-occur and also involve overlapping symptoms. For instance, patients who have been diagnosed with psychogenic or non-epileptic seizures (pseudo-seizures) -- a syndrome strongly linked to psychosocial trauma and other psychiatric factors -- have increased rates of seizure disorder due to one or more medical conditions (Benbadis, Agrawal & Tatum, 2001).

Misdiagnosis of a medical condition as a mental disorder is not a rare occurrence. Psychologists and other non-medically trained mental health clinicians may be particularly susceptible to these errors in clinical judgment (Rothbard, Blank & Staab, 2009). Failure to appreciate potential medical influences or possible non-psychiatric causes of a patient's clinical presentation can result in unnecessary and ineffective mental health care and a delay in obtaining appropriate treatment which may lead to potentially dire consequences (Compton, Goulding, Broussard & Trotman, 2008). This error in clinical judgment may also increase the risk of ethics complaints and malpractice suits.

Doctoral programs in professional psychology vary in terms of exposure to non-psychiatric causes and presentations of mental health conditions. At one end of the spectrum, psychologists trained in programs which emphasize the socio-cultural determinants of psychiatric disorders and involve placements in settings with relatively low base rates of major mental illness and medical illness (such as college counseling centers) may receive little training germane to the recognition of medically influenced psychiatric difficulties. In contrast, psychologists from programs that focus on assisting middle-age and older adults in medical settings are generally more conversant with the role medical factors may play in the development and exacerbation of psychiatric difficulties in their patients.

In the following section we will review clues available from patients' demographic information, family and personal history, and current mental status that may help distinguish a mental disorder from one or more medical conditions that may simulate or significantly exacerbate a mental disorder. We will also discuss how to identify patients at elevated risk for a medical basis to their psychiatric presentation. We outline the referral process for medical examination and the role played by ancillary diagnostic studies, notably psychological/neuropsychological testing. Finally, ethical issues are reviewed that pertain to the referral process for medical examination.

Table 1.

Medical Conditions Associated with Psychiatric Complaints or Symptoms and Mental Status Change

**Endocrinopathies and other metabolic**

**conditions:** Hyper and hypothyroidism, hyper and hypoparathyroidism, porphyria, hyperadrenalism (Cushing syndrome), hyperprolactinemia, diabetic ketoacidosis, hypoglycemia, testosterone deficiency, Addison's disease, and electrolyte imbalances

**Nutritional deficiencies:** Vitamin B12, folate, and thiamine

**Cerebral vascular disease:** Arteriovenous malfunction, lacunar (small) and large vessel stroke, and temporal arteritis

**Central nervous system and other Infections:**

HIV, neurosyphilis, Lyme disease, West Nile virus, cysticercosis (parasitic infection), meningitis, encephalitis, toxoplasmosis, hepatitis C, progressive multifocal leukoencephalopathy, and urinary tract infections

**Neoplastic disease:** Cerebral tumors especially those involving frontal lobe and limbic structures

**Neurodegenerative disease:** Alzheimer's dementia, frontal-temporal dementia, Lewy body dementia, Parkinson's disease, Parkinson plus syndromes, Huntington's disease

**Other Neurologic Conditions:** Head injury, hydrocephalus, seizure disorder, Wilson's disease, multiple sclerosis, neuro-sarcoidosis, Fahr's disease, and migraine

**Organ Insufficiency/Failure:** Cardiac, pulmonary, renal, hepatic and/or pancreatic

**Substance- Related Conditions:** Abuse, dependence, acute intoxication, or withdrawal from prescription and non-prescription medications, nicotine, caffeine, and illicit drugs, as well as discontinuation syndromes from psychiatric medications

*Identifying Patients at Risk for Possible Misdiagnosis*

Psychologists are well versed in how to take a family and personal history of mental disorder and substance abuse. Some psychologists, depending on their education, training, and clinical experience, are less familiar or comfortable addressing a family and personal history of medical conditions. However, it is recommended that a medical history should also be included in an initial mental health assessment. Specifically, inquiries should be made about family and personal histories of endocrine disorders -- especially thyroid disease, as well as any neurologic disorder such as seizure disorders, tumors, cerebral vascular disease, and any dementia (see Table 1). The patient should also be asked about head trauma with loss of consciousness as well as any repeated mild head injury over a relatively brief time interval. Similarly, inquiry should be made about surgeries and medical admissions. This includes any history of medical interventions which may be associated with residual cognitive change, mood complaints, or alterations in mental status such as cancer chemotherapy, cranial radiation, coronary bypass surgery, and electro-convulsive therapy.

It is prudent to complete a medical history with all patients but particularly with persons who are over the age of forty, impoverished, or report they have not had a general medical examination in several years. In the event that a patient is unable to provide an adequate family or personal medical history, the psychologist should, with consent, communicate directly with a reliable informant in an effort to obtain this information.

It is important to note that substance abuse is highly comorbid with mental disorders. From a medical perspective, substance abuse can precipitate onset of new

psychiatric symptoms as well as aggravate pre-existing psychiatric difficulties. Therefore, a history

which is positive for substance abuse can potentially support both a diagnosis of a mental disorder and a medical basis for a patient's mental health complaints and symptoms. Substance-related factors also encompass the acute and long term effects of medications employed to treat various medical conditions, mental disorders, substance abuse or dependence, and acute or chronic pain. As well, the effects of simultaneous use of multiple medications (poly-pharmacy) and the sequelae of toxin exposure from a broad range of chemicals and other agents are important to consider.

Patients at elevated risk for a medical contribution to their psychiatric difficulties also include persons with persistent and severe mental illness. This subgroup of mental health patients are at increased risk for medical morbidity, including early death, due to limited access to health care, low adherence or compliance with recommended medical care, and the iatrogenic effects of psychopharmacologic care (Janicak, 2004). There is growing support, from longitudinal studies, that long term major mental illness is a significant risk factor for neurodegenerative change, which can aggravate as well as precipitate psychiatric symptoms (Aires & Hurwitz, 2010).

In the following sections, we provide checklists for possible indicators of medically influenced psychiatric symptoms based on patients' mental status changes, clinical course and history, signs, and symptoms. These lists of clues are based on accumulated clinical experience, case reports and small case series (Christensen, Grace & Byrd, 2009; Freudenreich, 2010; Kaplan, 2009). They should be considered heuristic guides regarding whether medical consultation or referral might be required. Given that medical causes are often non-specific in terms of their effects on behavior, mood, perception, or cognition, it is generally not useful to infer a specific medical etiology based exclusively on a patient's particular symptomatic profile (Freudenreich, 2010). Additional information regarding medical conditions and their effect on psychiatric symptoms can be found in Cardinal and Bullmore (2011), Carrol and Rado (2009), Kaplan (2009), and Sachdev and Keshavan (2010) (see also Weichers, Smith & Stern, 2010).

### *Mental Status Change*

- A first episode of major mental status change involving catatonic, psychotic, or major mood symptoms, or problems with executive functioning.
- Mental status change that has arisen just preceding, during, or soon after a major medical illness (in particular, a febrile illness) or during or shortly after a medication change or use of other substances.
- Psychiatric symptoms which have emerged soon after an abrupt personality alteration or change.
- A relatively abrupt change in behavior, mood, or thought. *Behavior:* disinhibition with poorly controlled aggressive or sexual feelings and impulses. *Mood:* marked apathy, blunted affect, irritability, lability, or euphoria. *Thought:* paranoid beliefs or ideas.
- A marked intensification or worsening of behavior or personality pattern in the absence of psychosocial stressors especially when accompanied by impaired judgment and loss of insight (anosognosia).
- An acute change in cognition involving alteration in level of consciousness with variable alertness and attention, spells of confusion or disorientation, or short-term memory loss.
- Cognitive change associated with a steady decline in the ability to perform activities of daily life which precedes the onset of psychiatric symptoms by months or years.

### *Clinical Course and History*

- Initial onset of significant psychiatric symptoms after the age of forty.
- Absence of recent or concurrent psychosocial stressors that might plausibly explain psychiatric symptoms.
- Physical symptoms, notably fatigue, which precede the onset of high base rate psychiatric symptoms (anxiety or depression) by weeks, months, or years.
- Treatment resistant or worsening psychiatric symptoms in the context of appropriate and sustained intervention.
- Recurrent experiential phenomena in the absence of a history of anxiety disorder, dissociative disorder, or psychological trauma. These may include *déjà vu* (a compelling feeling of familiarity in new or novel situations), *jamais vu* (a compelling feeling of strangeness in ordinary or familiar circumstances), or derealization and depersonalization.
- Psychiatric symptoms disproportionately severe relative to any precipitating stressor.
- Cognitive symptoms disproportionately severe relative to the person's psychiatric symptoms.
- Complaints or symptoms associated with focal neurologic disease including unilateral or bilateral weakness and decreased or loss of sensation.
- Hallucinations, either visual, tactile, gustatory, or olfactory, specifically in the absence of auditory hallucinations.
- Persistent cognitive impairment that may include deficits in attention, short-term memory, language processing, organization or planning, or problem-solving as well as tangential, concrete, or slowed thinking.

### *Signs*

- Signs commonly associated with cortical brain dysfunction: *Aphasia* (language disturbance of varied type); *Apraxia* (impaired ability to execute familiar behavioral sequences despite intact motor functioning); *Agnosia* (failure to identify familiar objects and other stimuli, despite intact sensory functioning) or visuo-constructional deficits (new onset problems drawing or replicating visual- spatial patterns).
- Signs commonly associated with sub-cortical brain dysfunction. These include new onset dysarthria (indistinct or unintelligible speech), slowed speech or thinking, and problems with word retrieval and related information.
- Alterations in motor functioning. These include simple, repetitive, and purposeless movements of the face and hands, shuffling, broad-based ataxic (unsteady) or slowed gait, and tremor or problems with coordination and dexterity.
- Signs of possible organ dysfunction or failure which can be associated with mental status change such as jaundice (associated with pancreatic or hepatic dysfunction), or blue lips and dyspnea (labored breathing) seen in cardiac and pulmonary disease.

### *Symptoms*

- Somatic symptoms and signs that are disproportionately severe when compared to the severity of psychiatric symptoms -- fatigue, lack of appetite, weight loss, or alterations in bowel and sexual function.

- Somatic signs that rarely accompany mental disorders but are common in certain medical conditions. These include cold or heat intolerance, changes in skin pallor and hair texture, thickening of skin, and bulging eyes (thyroid disease); butterfly rash on nose or face (lupus); scarring over veins (intravenous drug use), and rhinophyma or red discoloration of nose (alcoholism).
- New onset headache symptoms (in the absence of a headache history) with an acute, recurrent, or chronic progressive pattern. Severe headache symptoms when accompanied by physical signs (photophobia, nausea and vomiting, visual changes or cognitive impairment) are more likely to result from a medical condition, such as migraine syndromes, than from a mental disorder.

### *Making a Referral for a Medical Examination*

Persons who present with a medical history known to confer an increased risk for the development of psychiatric difficulties or fall into an at-risk category (see Table 2) should be strongly encouraged to have an updated medical examination as part of an agreement for the initiation or continuation

Table 2.

Patients at Higher Risk for Medical Disorders Mimicking a Mental Disorder

- **Indigent** and impoverished persons with limited access to ongoing medical care and higher probability of undiagnosed medical illness.
- Individuals who engage in **high-risk behavior** associated with increased rates of medical morbidity including **substance abuse**, intentional drug overdoses and other suicidal behavior, promiscuity, and athletic activity associated with elevated rates of head trauma.
- Persons with **positive medical histories** known to confer increased risk for the development of psychiatric difficulties (see Table 1).
- **Elderly** individuals due to higher rate with aging of numerous medical conditions which are associated with mental status change.
- Patients with positive history of psychiatric difficulties particularly those with **persistent and severe mental illness**.

of mental health services. Individuals who do not fall within these risk categories but for whom there is a strong index of suspicion for a possible medical basis to their psychiatric difficulties should also be immediately referred to their primary care provider. The referring psychologist should report to primary care staff those aspects of the person's clinical presentation that prompted the request for medical assessment.

### *Role of Psychological/Neuropsychological Testing*

Psychometric tests can be quite useful in the detection of clinically significant changes in higher brain functioning in the context of negative or equivocal medical-neurologic findings. This is a common scenario in the case of mild head trauma, or post-concussive syndrome, and mild cognitive impairment. However, even the most state-of-the-art psychometric test batteries employed by highly skilled psychologists, should not be used as a first-line diagnostic procedure and are not sufficient substitutes for appropriate medical examination in the case of suspected medical contribution to a patient's psychiatric presentation. Therefore, referral for medical examination or screening should

always precede a decision to complete a psychometric assessment in this situation.

This issue will assume greater importance as the general population ages and may result in increased calls to psychologists from patients who wish to be evaluated due to concerns about their cognitive status, but who have had no prior medical consultation or screening for their complaints or symptoms.

### *Ethical Issues*

Ethical and liability issues arise when a psychologist suspects a possible medical basis to a patient's complaints or symptoms and that patient resists seeking appropriate medical consultation to clarify this matter. Any effort that has been made to persuade a patient to seek appropriate medical consultation needs to be carefully documented. Interrupting services until a patient completes a medical evaluation needs to be considered. Intractable resistance or non-compliance might need to be viewed as a potential "deal breaker" with respect to continuation or resumption of mental health services.

### *Summary*

Research is clearly needed to better determine which of the many clinical clues reviewed in this article are most useful in differentiating medical disorders from mental disorders. In the absence of appropriate evidence-based guidelines, psychologists are encouraged to err on the side of caution and refer patients for medical evaluation if they fall into one or more of the at-risk groups or meet the criteria for possible medical contribution to their psychiatric difficulties. We conclude our article by offering two vignettes that illustrate the role that treatable medical factors may play in the onset and maintenance of common psychiatric symptoms.

#### *Case 1.*

Mr. N was a recently married man in his late thirties seen for an initial mental health intake evaluation for new onset of panic attacks and insomnia. He declined offers from his physician for anti-anxiety and sleep medication, stating that he would rather address these issues in psychotherapy, believing that they were directly related to tensions in his recent marriage.

While taking a detailed initial history, it was discovered that prior to his marriage, Mr. N drank one cup of coffee a day for many years. His wife proudly referred to herself as a coffee connoisseur and, since their marriage, Mr. N had significantly increased his consumption of caffeine. He reported sharing a pot of coffee with his wife every morning during breakfast and that they enjoyed freshly ground coffee every evening after dinner.

After educating Mr. N about the anxiety-inducing and activating effects of caffeine, he greatly reduced his caffeine intake by changing over to decaffeinated coffee. Over the next few weeks, Mr. N reported no further panic attacks and a significant improvement in the quality and quantity of his sleep. At that point, Mr. N's psychotherapy shifted to difficulties he reported adjusting to his new marriage.

#### *Case 2.*

Ms. D was a married woman in her late forties with depressive symptoms. These symptoms began about four months prior to her mental health assessment. Prior to her mental health assessment,

Ms. D had been prescribed several anti-depressants without clear benefit by her primary care physician. When seen for her mental health consultation, Ms. D was taking Lexapro at 10 mg a day.

Ms. D. had no prior psychiatric history. Her medical history was significant for obesity and Type 2 diabetes. Her family history was noteworthy for thyroid disease in her mother. After obtaining written consent, her primary care physician was contacted and asked if there had been recent laboratory testing to evaluate her thyroid function. A week later, laboratory results revealed very low thyroid hormone levels and Ms. D was started on thyroid hormone supplementation. Two months later, and with ongoing treatment for her thyroid condition, Ms. D's depressive symptoms had fully resolved and Ms. D. had successfully tapered off her anti-depressant medication.

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