

The Physical Examination in Psychiatry

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The physical examination is a neglected aspect of the psychiatric assessment. For example, a survey of ninety-eight practicing psychiatrists, conducted by Patterson (1) in 1978, found that none of them routinely performed physical examinations on their patients. More than one-half of these psychiatrists reported that they no longer felt competent to do so. One situation in which psychiatrists do often perform physicals is while admitting patients to hospital. However, the quality of these examinations is often poor (2,3).

An indifferent attitude toward the physical examination has persisted in psychiatry despite numerous publications emphasizing the importance of medical assessment (2-8). One reason for this may be the predominantly negative emphasis of the existing literature regarding the psychiatric physical examination. In general, the literature is concerned only with the ability of the physical examination to exclude non-psychiatric disease. The physical exam is rarely described in a positive sense as an opportunity to gather useful information.

A negative attitude toward the physical examination is not justified within the diagnostic framework supplied by *DSM-III-R*. In fact, *DSM-III-R* frequently uses physical signs as diagnostic criteria and implicitly demands a full physical assessment as an inclusion or exclusion criterion for the majority of its diagnostic categories. For example, if a non-organic diagnosis is to be made correctly, *DSM-III-R* requires that it cannot be established that an organic factor initiated or maintained the disturbance (9). Thus, strictly speaking, a non-organic diagnosis can only be made after an appropriate physical assessment. The physical exam is as vital as, for example, the mental status findings.

This essay is an attempt to discuss the physical examination within a framework consistent with current diagnostic thinking in psychiatry. As such, the essay will discuss the physical examination, not merely as a way of ruling out organic disease, but rather as an important part of the psychiatric evaluation, no different, conceptually, than the history or mental status examination.

The physical examination is important in the assessment of all psychiatric patients, but it is nowhere more important than in the evaluation of patients with organic mental disorders. Organic disorders can present with a wide range of symptoms and signs and, as a result, they enter into the differential diagnosis of a large number of psychiatric disturbances. The history and mental status findings of patients with organic mental disorders may be identical to non-organic conditions. For this reason, a careful search for specific organic factors is essential in the clinical approach to patients with symptoms which could be caused by an organic disorder. Such symptoms include mood disturbance,

incoherence, delusions, hallucinations, personality disturbance, memory disturbance or anxiety. Obviously, a large proportion of patients will have some type of organic disorder in their differential diagnosis. Many of the organic factors which cause organic mental disorders produce physical signs. This makes the physical examination a very important part of the psychiatric evaluation in these patients.

Delirium is a very common organic mental disorder. It is associated with significant morbidity (10) and mortality (11). The syndrome of delirium is characterized by disturbed attention and disorganized thinking (9). The diagnosis is most often made on the basis of clinical observation and mental status findings. The treatment of delirium, however, is almost entirely dependent upon identification of the cause. Many causes of delirium will produce physical signs and the physical examination is therefore an important component of the evaluation of delirious patients. Etiologic factors which may produce physical signs include Wernicke's encephalopathy, alcohol withdrawal, hypertensive encephalopathy, hypoglycemia, shock, intracranial bleed, hypoxemia, meningitis, hepatic failure, focal central nervous system lesions, Vitamin B₁₂ deficiency and normal pressure hydrocephalus (12). In many cases, the rapid detection of such factors by the physical examination, as opposed to waiting for laboratory and radiologic results, could reduce mortality and lessen the probability of permanent neurological damage.

Another organic brain syndrome which necessitates a careful physical examination is dementia. The first priority in the assessment of a demented patient is the identification of reversible or treatable causes of the syndrome. Approximately 20% of dementias are reversible or partially reversible (13). Some of the treatable causes of dementia can only be reliably detected with specialized laboratory tests and some, especially the potential of medication toxicity, can best be determined by the history. However, many of the treatable causes of dementia may produce physical signs and thus the physical examination is essential for proper assessment. Such causes include nutritional deficiencies, endocrine disorders, vascular conditions, head injuries, chronic infections, space occupying lesions and normal pressure hydrocephalus (14). In addition to detecting etiologic factors, the physical exam may demonstrate positive evidence of the brain disease itself. The deficits in higher cortical functioning caused by dementia may be demonstrated through the bedside neuropsychological tests which can be a part of the psychiatric physical exam. Such tests will include the testing of motor functions such as rapid alternating movements, motor persistence and praxis and also, sensory functions such as stereognosis and graphesthesia. In addition, primitive reflexes may be released in dementia and these are best detected during the physical examination. The diagnostic criteria for dementia in *DSM-III-R* contain neurological signs of higher cortical dysfunction such as apraxia (9).

Intoxication is another organic mental disorder for which the physical examination provides diagnostic clues. Slurred speech, nystagmus and facial

flushing are all signs of alcohol intoxication. Opioid intoxication often produces pupillary constriction. Muscle rigidity, hyperacusis, sensory numbness and increased pulse and blood pressure are signs of phencyclidine intoxication. Cannabis intoxication can produce conjunctival infusion and dry mouth. All of these physical signs are diagnostic criteria for the intoxication states in *DSM-III-R*.

A variety of drug withdrawal states are characterized by physical signs. The physical examination can provide diagnostic evidence, especially for alcohol and sedative-hypnotic withdrawal (tremor, fever and autonomic hyperactivity) and opioid withdrawal (fever, sweating, pilo-erection and pupillary dilation). Again, *DSM-III-R* uses physical signs as diagnostic criteria for these disorders.

Thus, the physical examination can provide helpful or essential diagnostic information regarding a large number of organic mental disorders. In addition to this, the physical examination can contribute to the differential diagnosis of non-organic versus organic conditions. One particular neurological test, the face-hand test, can be used to help distinguish organic from non-organic psychiatric disorders. The face-hand test was originally described by Fink, Green and Bender in 1952 (17). The test is based on the principle that when light touch stimuli are simultaneously applied to the cheek and hand, patients with organic mental disorders frequently report only the face stimulus. Thus, the face-hand test is based on the neurological phenomenon of extinction. The test is usually conducted with the patient in a sitting position with his or her eyes closed. The examiner touches the patient simultaneously on one cheek (either left or right) and the back of one hand (either left or right). The patient is then asked where he was touched. If the patient correctly localizes both stimuli he is awarded one point. Patients with a variety of organic mental disorders will report only "left cheek" or "right cheek" because they have extinguished the hand stimulus. The test consists of ten consecutive face-hand stimulus pairs and is thus scored from zero to ten. A score of six or less is suggestive of an organic mental disorder. One notable advantage of the face-hand test is that patients are unaware of their errors and therefore do not resist the testing the way that some patients with cognitive deficits may resist formal testing of their cognition.

Since its original description, the face-hand test has come into fairly common use as a screening test for dementia (18,19). The test has potential utility within the context of general psychiatry because of the relatively high prevalence of organic mental disorders in this population. However, the test has not been evaluated in a general psychiatry setting. We therefore recently conducted a study for the purpose of evaluating the usefulness of the face-hand test in the assessment of psychiatric inpatients (20). The study involved testing one hundred unselected patients at the time of their admission to the general psychiatry inpatient wards at the Calgary General Hospital. To avoid bias, the test was administered by a tester who had no knowledge of the circumstances surrounding the patients' admission. Subsequently, a blind chart review was carried out which recorded data regarding diagnosis, ingestion of psycho-active

substances and toxicological testing from the hospital chart. On the basis of this blind chart review, patients were classified as having or not having an organic disorder. Seventeen percent of the sample had an organic diagnosis (specific disorders included intoxication, dementia, delirium, organic personality disorders, and organic delusional disorders). The face-hand test was found to be 87% sensitive and 84% specific at identifying these disorders. The negative predictive value of the test was 97%, indicating that the face-hand test is particularly useful for excluding the presence of organic mental disorders among psychiatric inpatients. The face-hand test takes less than a minute to perform and should be a part of the physical examination performed on psychiatric inpatients at the time of their admission to hospital.

Another physical sign which has potential usefulness in psychiatry is asterixis. Asterixis is a flapping tremor which is classically described in hepatic encephalopathy. However, asterixis may be present in almost any type of metabolic encephalopathy (a term roughly equivalent to delirium) and in drug intoxication states as well (21). Approximately ten percent of medical inpatients and more than twenty percent of patients recovering from general anaesthesia exhibit asterixis (22). It is our own experience that delirious patients and patients who are on high doses of psychiatric medications commonly have asterixis. We have also observed asterixis in a schizophrenic patient without an apparent cause for it. Asterixis in schizophrenia is of interest because asterixis may be caused by hyperfunctioning central dopaminergic systems (23).

The physical examination is thus very important in the assessment of patients with diffuse brain impairment due to delirium, dementia and intoxication. But, the usefulness of the physical examination is not limited to these disorders. The physical examination is also essential for patients with those organic mental disorders which can occur in a clear sensorium. Such disorders include organic delusional disorders, organic hallucinosis, organic mood disorders, organic anxiety disorders and organic personality disorders. These disorders can present with the same symptoms as do common non-organic disorders and therefore enter into the differential diagnosis of the majority of psychiatric patients. In fact, these organic mental disorders may produce findings in the history and mental status which are indistinguishable from non-organic conditions. The only way to diagnose one of these disorders, or to exclude such a diagnosis, is to do a careful physical assessment.

Delusions are an example of a common psychiatric symptom for which a physical examination is required for assessment. Often delusions are the result of non-organic mental disorders such as schizophrenia, delusional disorder or major depression with psychotic features. Likewise, delusions can occur in the context of coarse brain disease such as delirium or dementia. Another cause is organic delusional disorder. *DSM-III-R* defines organic delusional disorder as a disturbance in which prominent delusions are due to a specific organic factor (7). Obviously, the physician must search for such specific factors if this diagnosis is to be made correctly. Because the disturbance occurs in a clear sensorium, the

mental status findings cannot reliably distinguish this disorder from the non-organic causes of delusions. Some of the factors which may be responsible for organic delusional disorder are best identified through the history (eg., drug ingestions) or through laboratory testing (eg., EEG abnormalities in temporal lobe epilepsy). However, many of the factors responsible for organic delusions will produce physical signs and thus be detected on physical examination. Such physically evident causes of delusions include: metabolic disorders (hypercalcemia, porphyria, etc.), endocrinopathies, deficiency states (B_{12} , folate, niacin, thiamin), inflammatory disorders (SLE, temporal arteritis), heavy metal toxicity and central nervous system disorders (Huntington's disease, normal pressure hydrocephalus, neoplasms, etc.) (24). Proper treatment of organic delusional disorders depends almost entirely upon identification of the underlying cause (25).

Hallucinations are another common presenting complaint in psychiatry. The differential diagnosis of these symptoms include a large number of organic and non-organic conditions. Organic hallucinosis is a mental disorder which will be included in the differential diagnosis of most patients experiencing hallucinations. Again, organic hallucinosis occurs in a clear sensorium and thus cannot be distinguished from non-organic conditions by mental status testing. Most cases of organic hallucinosis are alcohol related (25) but hallucinogen use is also a significant cause (26). Such causes of the disorder are probably more likely to be detected with the history than with the physical examination. However, chronic sensory deprivation is another important cause of organic hallucinosis (25). Such hallucinations may represent release phenomena (27). The intactness of the various sensory modalities, especially visual and auditory, should be screened as part of the physical examination in any patient experiencing hallucinations.

While delusions and hallucinations are common in psychiatric practice, an even more common problem is that of mood disturbance. Mood symptoms may reflect a primary mood disorder or may be secondary to organic factors. Thus, organic mood disorders are in the differential diagnosis of most patients presenting with prominent mood symptoms. An organic mood disorder may be of the manic type or of the depressed type (26). Many of the common causes of both types of this disorder may be detected on the physical examination. The organic causes of mania, which may be detectable on the physical examination, include infections such as influenza (28) and Q-fever (29). In addition, neoplasms such as parasagittal meningiomas (30) or diencephalic gliomas (31) can produce a manic syndrome. Right hemispheric damage and multiple sclerosis can present as mania (25) and could produce detectable focal signs or soft neurological signs. Likewise, many of the causes of organic depression may produce physical signs. Such physically evident causes of depression include pancreatic carcinoma, lymphomas, endocrinopathies, cerebrovascular disease, Parkinson's disease, pernicious anemia and collagen vascular disease (25). Thus, the physical exam is an important part of the diagnostic workup of depressed patients and a necessary addition to the usual laboratory screening.

Anxiety is another very common psychiatric symptom. As with most common psychiatric symptoms, organic syndromes are included in the differential diagnosis of anxiety. Organic anxiety disorder is the name given by *DSM-III-R* to disorders in which prominent anxiety is judged to be due to an organic factor (9). The anxiety may be generalized or may consist of panic attacks (9). Virtually all of the organic factors which can cause this disorder may produce physical signs. The most common causes are endocrinopathies (hyperthyroidism, pheochromocytoma, hypoglycemia) and intoxication with stimulants (32). Organic anxiety disorder may also be caused by tumors in the vicinity of the third ventricle (9). Numerous medical disorders such as chronic pulmonary disease, collagen vascular disease and demyelinating disease can present with prominent anxiety symptoms as well (9). The physical examination is an important part of the assessment of patients with anxiety.

Organic personality disorder is defined as a persistent personality disturbance which is due to a specific organic factor (9). The most common cause of this type of disorder is structural brain damage (9). The physical examination is important in the assessment of these patients because the underlying damage may produce focal neurological signs, deficits in cortical functioning (eg, constructional apraxia, motor impersistence, etc.) or release of primitive reflexes. Thus, the physical examination could be useful in differentiating organic from non-organic personality disorders. In addition, physical findings might help to localize brain pathology in a patient presenting with this disorder.

As I have described, the physical examination is necessary to make a distinction between organic and non-organic mental disorders. This distinction is an important one for the differential diagnosis of virtually all psychiatric patients. However, the physical examination is also very useful for the assessment of patients with established non-organic disorders. There are three important reasons for this. One reason is that there is a high rate of coincident physical illness in psychiatric patients. Another reason is that the physical examination can provide important diagnostic evidence, even in non-organic mental disorders. The third reason is that the physical exam is important therapeutically as well as diagnostically.

All available data indicate that there is a high rate of medical illness both in psychiatric outpatient (4,5,6) and inpatient (3,7) populations. In addition, medical illness often remains undiagnosed in psychiatric patients. One study found that 43% of referrals to a psychiatric clinic had at least one physical illness and that 46% of these were undiagnosed by the referral source (6). Another study examined the inpatient population of an American state hospital and found medical illnesses in 80% of the patients (7). In both of these studies, the medical illnesses strongly affected the psychiatric state of many of the patients. It is probable that some of these patients had what *DSM-III-R* would classify as organic mental disorders (for example, when the disturbance resolves completely when the medical illness is treated) while others had non-organic

disorders which were worsened in a nonspecific way by medical illness. The reason for the high prevalence of medical disease in psychiatric patients is, no doubt, complex. It seems likely, for example, that psychiatric disease may alter the presentation of illness, which may interfere with diagnosis. Some physicians may not take physical complaints as seriously in psychiatric patients as they do in patients "without a psych history". For whatever reason, it would seem that psychiatric patients receive sub-optimal medical care (8). Physicians with a knowledge of psychiatric disease should be the physicians most capable of dealing with the confounding factors presented by psychiatric illness in their patients. The physical examination, routinely performed upon admission to hospital, is a golden opportunity to screen for coincident disease. However, the physical examination must be a "complete" physical examination because screening physicals have a very low yield (7). Apparently, very few psychiatrists routinely perform physical exams on outpatients (1). All evidence about the extent of medical illness in the outpatient population suggests that they should (6).

The usefulness of the physical examination is not limited to identifying organic mental disorders and screening for coincident medical disease. In fact, the physical examination has a role to play in gathering information about non-organic psychiatric disorders. Schizophrenics, for example, exhibit more neurological "soft signs" than do normal controls or psychiatric controls (33,34). Most of these "soft signs" (eg., apraxia, astereognosis, agraphesthesia) would be elicited during the physical exam. Some authors suggest that the frequency of neuropsychological signs in major functional psychiatric illnesses is high enough to be of practical diagnostic significance (35). Another group of non-organic disorders which may produce physical signs are the substance use disorders. Physical stigmata of alcoholism such as spider nevi, testicular atrophy, *Dupuytren's* contracture and gynecomastia may signal an alcohol dependency problem. Likewise, needle tracts may provide evidence of intravenous drug use. Anxiety disorders produce physiologic stigmata of sympathetic discharge which serve as objective signs of anxiety. In fact, *DSM-III-R* includes physical signs of anxiety such as clammy hands and tachycardia as diagnostic criteria for anxiety disorders (9). Patients with factitious disorders may have numerous abdominal scars and bulimics may have a callus on their finger from self-induced vomiting. Scarred wrists may provide evidence of past suicide attempts. Astute observations made during the physical exam can contribute to the resolution of many diagnostic problems.

The role of the physical exam does not end with diagnosis. The physical examination plays an important role in psychiatric therapeutics as well. Physical signs may allow the detection of contraindications to psychiatric treatments. For example, certain deficits in intracardiac conduction are contraindications to tricyclic antidepressants and low potency phenothiazines (35). The quinidine-like activity of these drugs slows intracardiac conduction and can potentially convert a low grade conduction deficit into a higher grade one, including third

degree heart block (35). An electrocardiogram is the most important method of assessment of cardiac conduction but a reversed split of S_2 (37), or a finding of retinal hypertensive changes may raise suspicion (37). Pregnancy is a relative contraindication to all psychiatric drugs. In some circumstances, pregnancy might be detected on a physical examination. The finding of prostatic hypertrophy should prompt the physician to select a medication with little antimuscarinic effect. Papilledema may signal a contraindication to electroconvulsive therapy or may indicate lithium induced pseudotumor cerebri. Many side effects of psychiatric medications such as goiter, in the case of lithium, or tardive dyskinesia and extrapyramidal effects, in the case of neuroleptics, can only be followed by repeated physical assessment. Numerous less common, but more severe, side effects such as hepatitis, bone marrow suppression and the neuroleptic malignant syndrome require physical examination for assessment.

The role of the physical examination in psychiatry is no different than the role of the physical examination in other medical specialities. Physical assessment plays an important role in diagnostics and therapeutics in all fields of medicine. The physical examination has received less attention in psychiatry probably because of a traditional belief that the body is unrelated to diseases of the mind. Of course, the available data in the literature regarding physical illness in psychiatric patients is incompatible with this belief. So are contemporary trends in psychiatric therapeutics and the diagnostic framework now in use in psychiatry. It is likely that these factors will lead to a higher profile for the physical examination in psychiatry in the future. In addition, if psychiatrists become more adept at utilizing the physical signs which can test higher cortical function, the physical examination is likely to become more specialized and useful in psychiatry. Investigation of the significance and utility of specific neuropsychological physical signs should be a priority in psychiatric research. In conclusion, the physical examination is an important aspect of the psychiatric assessment and one which is likely to increase in profile in coming years.

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