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Distinguishing Psychological Disorders From Neurological Disorders: Taking Axis III Seriously

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Inasmuch as current efforts in clinical neuropsychology call attention to the difficulty in differentiating psychological from neurological disorders, it is unclear to what extent professional psychologists without expertise in this subspecialty have knowledge of this diagnostic issue. This article asserts the need for psychologists to have requisite knowledge of neurological disorders that can initially present with psychological symptoms. Recent developments in professional psychology's advancement into hospital settings has prompted examination of such competency issues, and the abilities of psychologists to accurately differentiate neurological from psychological disorders are discussed. Examples of neurological conditions that commonly exhibit psychological symptoms are highlighted, and reference to the elderly is made to exemplify the need for accurate diagnostic sophistication. Relevant research is reviewed and suggestions for training are offered.

A current professional issue involves the question of psychologists' competency to function as autonomous professionals within medical settings and to refer appropriate patients to such settings (cf. California Association of Psychology Providers et al. vs. Rank, 1989). This concern is most apparent when considering that more than 10% of the American Psychological Association's members practice in medical settings, a percentage that continues to increase (DeLeon, Pallak, & Hefferman, 1982; Enright, Resnick, DeLeon, Sciara, & Tanney, 1990). If psychologists were, in fact, employed as independent practitioners within such settings, would their professional diagnostic competencies include the ability to distinguish psychological from neurological disorders? To date, very few empirical studies have addressed this or related questions (cf. Sanchez & Kahn, 1991; Sbordone & Rudd, 1986). As Geschwind (1975) pointed out, even if psychological sequelae to neurological disorders were uncommon, this would in no way justify neglect on the part of mental health professionals in obtaining the requisite knowledge to differentiate such causes.

Historically, estimates have indicated that approximately 30% of all patients initially admitted to psychiatric hospitals actually have neurological disorders or disease (Maltzberg, 1959). More recent and conservative estimates, however, indicate that approximately 10% of patients initially diagnosed with psychological disorders are subsequently found to have a physical basis for their symptoms (see Muecke & Krueger, 1981; Sanchez & Kahn, 1991). Nonetheless, the prognostic and treatment consequences of inaccurate diagnoses are obvious: Patients with underlying medical or neurological conditions will likely go untreated and may deteriorate while in the psychologist's care.

Although a recent study by Sanchez and Kahn (1991) found that mental health professionals were as accurate as medically trained clinicians in differentiating medical from psychological disorders, another study by Sbordone and Rudd (1986) revealed more troublesome findings with regard to the more specific differentiation of neurological from psychological disorders. They empirically addressed whether professional psychologists practicing in the community could recognize an underlying neurological disorder in patients presenting with disturbed psychological functioning and whether they would recommend referral of such a patient to a neurologist. Survey questionnaires were mailed to and completed by 206 psychologists. Four case vignettes were presented containing salient descriptions of an underlying neurological disorder within the context of a psychological disorder presentation. Their results indicated that little more than half of those surveyed recommended referral to a neurologist. More than one third of the psychologists recommended psychotherapeutic treatment alone. They concluded that these findings argue strongly for professional psychologists having a better working knowledge of neurological disorders and closer working relationships with neurologists and other medical specialists.

The data also suggest that psychologists often may not consider or attempt to rule out neurological conditions that can present with behavioral symptoms. The findings above are somewhat disturbing because the current multiaxial diagnostic system provided in the revised third edition of the *Diagnostic*

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and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987) explicitly calls for the clinician to integrate information on physical or neurological conditions into diagnostic formulations.

Clinical Considerations

Given that the average annual incidence of neurological disorders in the general population is approximately 2,500 per 100,000 people, or 2.5% (Kurtzke, 1991), attention to the possibility of clients with such conditions presenting for psychological treatment is certainly indicated. Indeed, a number of neurological disorders can present with psychological symptoms; examples include temporal lobe epilepsy, frontal lobe lesions, limbic system damage, central nervous system toxicity, traumatic head injury, multiple sclerosis, early stages of Huntington's disease, and psychoses associated with various endocrine diseases, to highlight but a few. In addition, false-positive diagnoses of conversion reactions inappropriately applied to persons with physical disease does not appear uncommon (Watson & Buranen, 1979). Although detailed discussion of these and other neurological disorders is beyond the scope of this article, brief descriptions of neurological disorders that commonly exhibit psychological symptomatology are provided, and I refer the reader to additional sources (e.g., Benson & Blumer, 1975; Berg, Franzen, & Wedding, 1987; Jefferson & Marshall, 1983; Kolb & Whishaw, 1989; Pincus & Tucker, 1985; Taylor, 1982).

Neurological disorders can exhibit a multitude of psychological symptoms, including paranoia, hallucinations, attentional deficits, mood swings, euphoria, sleep disturbance, personality changes, depression, impaired memory, anxiety, apathy, and violence (Lishman, 1978). Temporal lobe epilepsy (also termed *complex partial seizure disorder*), for example, has clear cognitive and affective changes associated with it (Blumer, 1975; Trimble, 1982; Trimble & Thompson, 1986). Consistent behavioral changes following onset of temporal lobe seizures include a global diminution in sexual behavior and impulsive–irritable behavior (Blumer, 1975); yet they often tend to be hyperethical and display hyperreligiosity, focusing on the qualities of good and evil, right and wrong, and an overall deepening of emotional experience. Nothing is thought to be trivial, and insignificant details can assume great importance. Hypergraphia (i.e., excessive writing) also is common.

Personality changes following frontal lobe damage often include apathy and loss of all initiative; at the other end of the spectrum, such patients can display euphoria with a lack of adult restraint or tact (Benson & Blumer, 1975; Stuss & Benson, 1984, 1986; Taylor, 1982). The earliest symptoms of frontal lobe tumors usually involve alterations in behavior consistent with those of a psychological origin. The apathy displayed by the patient with a frontal lobe lesion could possibly be mistaken for the psychomotor retardation of the depressed individual; the distinction between the two is that the apathy of the frontal lobe patient has no theme (e.g., empty indifference), whereas the depressed patient typically reveals a preoccupation with worrisome thoughts. Incontinence also is a frequent indicator of frontal lobe pathology.

In a related vein, patients who have sustained traumatic head injury often exhibit symptoms and behaviors similar to those of frontal lesion patients, in part because the frontal lobes are highly susceptible to damage from closed head trauma (see Butler & Satz, 1988; Grimm & Bleiberg, 1986). Butler and Satz (1988) have suggested that the clinician be aware that a head trauma patient may appear depressed, exhibiting symptoms of memory dysfunction, psychomotor retardation, apathy, lack of initiation, and blunted or flat affect, in the absence of a major depressive disorder. This does not imply that such patients may not, in fact, become depressed. However, when a history of head trauma has been identified, close attention should be paid to the subjective, cognitive, and mood-related symptoms of depression; "[n]eurovegetative signs such as alterations in sexual functioning and sleep patterns become less useful as indexes of depression in head trauma patients" (Butler & Satz, 1988, p. 537).

Huntington's disease has two clearly recognizable syndromes: (a) a progressive dementia afflicting all patients, involving motoric dysfunction (i.e., chorea), and (b) an intermittent affective disorder afflicting the majority of the patients (for discussion, see Albert & Moss, 1988; Folstein, Brandt, & Folstein, 1990; McHugh & Folstein, 1975). The affective changes often appear before the onset of choreic movements and resemble bipolar or schizophrenic disorders. Paranoia, delusions, hallucinations, and mood swings are a number of such symptoms. Because Huntington's disease is an inherited (autosomal dominant) disease, one parent will have had the disease and usually die before the child ever develops any symptoms. Therefore, family histories are critical in the determination of this diagnosis.

Psychiatric and cognitive disturbances are also a common feature of metabolic and endocrine disorders (Lishman, 1978). Cognitive deterioration is a fairly consistent finding in pronounced thyroid insufficiency (hypothyroidism). It shares similarities with symptoms associated with progressive degenerative dementia, such as insidious onset and progression of cognitive decline. The patient suffers from sluggishness, lethargy, poor attention and concentration, and memory disturbances. However, this condition is indeed reversible with thyroid replacement therapy (Lezak, 1983).

Multiple sclerosis (MS), a progressive degenerative disorder causing demyelination of cortical and subcortical structures, can also present with psychological symptoms. Frequent symptoms include muscle weakness and fatigue, double vision, numbness and paresthesia, pain, bowel and bladder dysfunction, and sexual disturbance (Rao, 1990). Affective disturbances, including both euphoria and depression, can accompany or precede the onset of neurological disturbances in MS patients (Devins & Seland, 1987; Rao, 1990; Surridge, 1969). Conversion symptoms, too, may be mistakenly attached to the initial symptoms of MS.

Another general diagnostic consideration involves physical symptoms such as headaches, which can be symptomatic of stress, anxiety, or depression, or the first sign of an organic disturbance. Within the neurological literature, Pincus and Tucker (1985) have advised colleagues to fully investigate any headache that is "the worst, the first, or cursed (by neurological abnormalities)" (p. 292). That is, if the headache is the worst ever reported by the patient, if it is a new type of headache, or if it is associated with neurological signs, it may be of organic

etiology. However, if the headaches are dull, generalized, constant for many days in a row, or have been present for more than a year, they are likely to have no neurological cause (Pincus & Tucker, 1985).

Conversely, headaches caused by early brain tumors result from increased intracranial pressure or by traction of the mass on pain-sensitive structures within the skull (Pincus & Tucker, 1985). Unfortunately, there is no single characteristic of headaches caused by a brain tumor. They may be present in the morning on awakening and recede as the day continues. Often the headaches are either bifrontal or bioccipital, lateralized or localized, and can be exacerbated or relieved by changes in positioning. Pincus and Tucker (1985) further state that the single most important feature in distinguishing tension headache from those caused by increased intracranial pressure is that the patient usually presents to the physician within a few weeks of headache onset in the latter case. Although these are general guidelines, properly evaluating headaches is complex. Thus, any complaint of headaches should be seriously entertained for neurological causes and warrants consideration of a neurological consultation.

Finally, it should be noted that there is evidence accumulating that previously held "psychiatric" disorders, such as schizophrenia, are now thought to show brain abnormalities and that the traditional dichotomy between organic and functional disorders may be misleading and misconstrued in some cases. Certainly an interaction may be possible; for instance, a sequelae to the brain may result in a higher risk of developing different types of psychiatric disorders (for discussion, see Crockett, Clark, & Klonoff, 1981). Close attention to recent advances in the neurosciences will help elucidate more precisely the nature of brain–behavior relationships and ultimately shed new light on the distinction between functional and organic disorders.

Differential Diagnosis in the Elderly

Another example of this "borderland" (Geschwind, 1975) between neurology and psychology is seen in the elderly. As early as a decade ago, an estimated 15% to 25% of the elderly were reported to have significant mental health problems (U.S. President's Commission on Mental Health, 1978). Of those elderly who reside outside of long-term care facilities and institutionalized settings, approximately 10% to 15% are cognitively impaired, and an equal number experience significant affective disorders (Reisberg & Ferris, 1982). In addition, Butler (1975) indicated that the incidence of psychopathology increases with age, stating that psychological disorders increase steadily with each decade of life—particularly depression and paranoid states. Indeed, the hallmark illness in the elderly, dementia or "senility," is inaccurately diagnosed in 10% to 30% of cases within general medical populations (National Institute on Aging Task Force, 1980). Various intracranial conditions, systemic illnesses, deficiency states, endocrinopathies, drug effects, toxin effects, infections, and vascular disorders can present as dementing illness (Cummings, Benson, & LoVerma, 1980); a substantial proportion of such cases have potentially reversible symptoms.

A neurological disorder mistakenly diagnosed as a psychological disorder, or the converse, is not uncommon, partly because of the inherent difficulty in differentiating these conditions. Kaszniak (1987) delineated several reasons for difficulty in differentiating dementia from depression in older age. First, there are changes in cognitive functioning associated with normal aging, tending to blur the distinction between normal age-related changes and early indicators of dementia. Second, cognitive difficulty frequently accompanies depression in the elderly and can be of sufficient severity to be confused with dementia. Third, the signs and symptoms of neurological disorders in which dementia can occur do have some overlap with those of depression (e.g., psychomotor slowing, sleep and appetite disturbances). Last, dementia can be accompanied by depression in some patients. Thus, from the example of elderly populations, it is apparent that the misdiagnosis of treatable neurological disease presenting with psychological symptomatology (e.g., reversible neurological illnesses such as hyperthyroidism misdiagnosed as bipolar disorder) is not uncommon despite the obvious need for accurate assessment of this fast-growing segment of the population.

Clinical Training Considerations

Sbordone and Rudd (1986) underscore that doctoral programs in clinical psychology generally do not include formal training in the recognition of neurological disorders. Rather, most training occurs at the general level of instruction of the biologic bases of behavior, without specific reference to neurological disorders and their concomitant behavioral symptomatology. Berg, Franzen, and Wedding (1987) have also suggested that such gaps are present in the training of general clinicians, who are often not taught to recognize when referral to a specialist is appropriate.

> Unfortunately, many training programs in neuropsychology, and especially in clinical psychology, leave the student ill prepared and inexperienced in this area, and . . . dismayed by both the number and complexity of central nervous system disorders that may first manifest themselves through aberrant behavior. (Wedding, 1986, p. 59)

Thus, following their predoctoral or postdoctoral training, psychologists may not be adequately equipped with the diagnostic sophistication to detect subtle underlying neurological disorders in clients seeking psychological treatment (for discussion, see Sbordone & Rudd, 1986).

A number of actions may help to achieve such competency, including thorough histories and behavioral assessments of all patients, regular screening referrals of patients to physicians, maintaining referral networks that include clinical neuropsychologists and physicians (such as neurologists and psychiatrists), continuing education programs that focus on differential diagnosis, didactic and experiential training in clinical neuropsychology, research delineating the caveats in psychologists' knowledge of neurological and other medical disorders, and development of specialized training within clinical psychology programs for the recognition of neurological and other medical conditions.

Finally, the scant literature investigating psychologists' and other health care professionals' competency in this and related domains should be buttressed. Future research will be crucial in determining differential diagnostic abilities of practicing clinicians. Such efforts will assure that issues of diagnostic accuracy between mental health professionals are resolved empirically and not through the political arena (for discussion, see Sanchez & Kahn, 1991). Integral to this end, the statutory au-

thority to independently practice psychology in hospital settings has been attacked most pointedly around this competency issue: "that only a physician is authorized to render a diagnosis concerning a mental disorder that is organic in origin or nature" (Enright, Welch, Newman, & Perry, 1990). As the California Supreme Court has recently judged professional psychologists to be competent for primary responsibility of diagnosis and treatment of mental disorders, regardless of whether the mental disorder is of a physical or psychological origin (Enright et al., 1990), greater attention is warranted on this specific question of competency in distinguishing neurological from psychological disorders.

References

Albert, M. S., & Moss, M. B. (1988). *Geriatric neuropsychology.* New York: Guilford Press.

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.

Benson, D. F., & Blumer, D. (Eds.). (1975). *Psychiatric aspects of neurological disease.* New York: Grune and Stratton.

Berg, R., Franzen, M., & Wedding, D. (1987). *Screening for brain impairment: A manual for mental health practice.* New York: Springer.

Blumer, D. (1975). Temporal lobe epilepsy and its psychiatric significance. In D. F. Benson & D. Blumer (Eds.), *Psychiatric aspects of neurological disease* (pp. 171–198). New York: Grune and Stratton.

Butler, R. N. (1975). Psychiatry and the elderly: An overview. *The American Journal of Psychiatry, 132,* 893–900.

Butler, R. W., & Satz, P. (1988). Individual psychotherapy with head-injured adults: Clinical notes for the practitioner. *Professional Psychology: Research and Practice, 19,* 536–541.

California Association of Psychology Providers et al. v. Peter Rank et al., Order from the California Superior Court (Los Angeles, January 17, 1986). Case No. C 502929.

Crockett, D., Clark, C., & Klonoff, H. (1981). Introduction: An overview of neuropsychology. In S. B. Filskov & T. J. Boll (Eds.), *Handbook of clinical neuropsychology* (pp. 1–38). New York: Wiley.

Cummings, J., Benson, F., & LoVerma, S. (1980). Reversible dementia: Illustrative cases, definition, and review. *Journal of the American Medical Association, 243,* 2434–2439.

DeLeon, P. H., Pallak, M. S., & Heffernan, J. A. (1982). Hospital health care delivery. *American Psychologist, 37,* 1340–1341.

Devins, G. M., & Seland, T. P. (1987). Emotional impact of multiple sclerosis: Recent findings and suggestions for future research. *Psychological Bulletin, 101,* 363–375.

Enright, M. F., Resnick, R., DeLeon, P. H., Sciara, A. D., & Tanney, F. (1990). The practice of psychology in hospital settings. *American Psychologist, 45,* 1059–1065.

Enright, M. F., Welch, B. L., Newman, R., & Perry, B. M. (1990). The hospital: Psychology's challenge in the 1990's. *American Psychologist, 45,* 1057–1058.

Folstein, S. E., Brandt, J., & Folstein, M. F. (1990). Huntington's disease. In J. Cummings (Ed.), *Subcortical dementia* (pp. 87–107). New York: Oxford University Press.

Geschwind, N. (1975). The borderland of neurology and psychiatry: Some common misconceptions. In D. F. Benson & D. Blumer (Eds.), *Psychiatric aspects of neurological disease* (pp. 1–9). New York: Grune and Stratton.

Grimm, B. H., & Bleiberg, J. (1986). Psychological rehabilitation in traumatic brain injury. In S. B. Filskov & T. J. Boll (Eds.), *Handbook of clinical neuropsychology* (Vol. 2, pp. 495–560). New York: Wiley.

Jefferson, J. W., & Marshall, J. R. (1983). *Neuropsychiatric features of medical disorders.* New York: Plenum Press.

Kaszniak, A. W. (1987). Neuropsychological consultation to geriatricians: Issues in the assessment of memory complaints. *The Clinical Neuropsychologist, 1,* 35–46.

Kolb, B., & Whishaw, I. Q. (1989). *Fundamentals of human neuropsychology* (3rd ed.). New York: Freeman.

Kurtzke, J. F. (1991). Neuroepidemiology. In W. G. Bradley, R. B. Daroff, G. M. Fenichel, & C. D. Marsden (Eds.), *Neurology in clinical practice: Principles of diagnosis and management* (Vol. 1, pp. 545–560). Boston: Butterworth-Heinemann.

Lezak, M. D. (1983). *Neuropsychological assessment* (2nd ed.). New York: Oxford University Press.

Lishman, W. A. (1978). *Organic psychiatry.* St. Louis: Blackwell.

Maltzberg, B. (1959). Important statistical data about mental illness. In S. Arieti (Ed.), *American handbook of psychiatry* (Vol. 1, pp. 161–174). New York: Basic Books.

McHugh, P. R., & Folstein, M. F. (1975). Psychiatric syndromes of Huntington's chorea. In D. F. Benson & D. Blumer (Eds.), *Psychiatric aspects of neurological disease* (pp. 267–277). New York: Grune and Stratton.

Muecke, L. N., & Krueger, D. W. (1981). Physical findings in a psychiatric outpatient clinic. *American Journal of Psychiatry, 138,* 1241–1242.

National Institute on Aging Task Force. (1980). Senility reconsidered: Treatment possibilities for mental impairment in the elderly. *Journal of the American Medical Association, 244,* 259–263.

Pincus, J. H., & Tucker, G. J. (1985). *Behavioral neurology* (3rd ed.). New York: Oxford University Press.

Rao, S. (1990). Multiple sclerosis. In J. Cummings (Ed.), *Subcortical dementia* (pp. 164–180). New York: Oxford University Press.

Reisberg, B., & Ferris, S. H. (1982). Diagnosis and assessment of the older patient. *Hospital and Community Psychiatry, 33,* 104–110.

Sanchez, P. N., & Kahn, M. W. (1991). Differentiating medical from psychological disorders: How do medically and non-medically trained clinicians compare? *Professional Psychology: Research and Practice, 22,* 124–126.

Sbordone, R. J., & Rudd, M. (1986). Can psychologists recognize neurological disorders in their patients? *Journal of Clinical and Experimental Neuropsychology, 8,* 285–291.

Stuss, D. T., & Benson, D. F. (1984). Neuropsychological studies of the frontal lobes. *Psychological Bulletin, 95,* 3–28.

Stuss, D. T., & Benson, D. F. (1986). *The frontal lobes.* New York: Raven Press.

Surridge, D. (1969). An investigation into some psychiatric aspects of multiple sclerosis. *British Journal of Psychiatry, 155,* 749–764.

Taylor, R. L. (1982). *Mind or body? Distinguishing psychological from organic disorders.* New York: McGraw Hill.

Trimble, M.R. (1982). The interictal psychoses of epilepsy. In D. F. Benson & D. Blumer (Eds.), *Psychiatric aspects of neurological disease* (Vol. 2, pp. 75–92). New York: Grune & Stratton.

Trimble, M. R., & Thompson, P. J. (1986). Neuropsychological aspects of epilepsy. In I. Grant & K. M. Adams (Eds.), *Neuropsychological assessment of neuropsychiatric disorders* (pp. 321–346). New York: Oxford University Press.

U.S. President's Commission on Mental Health. (1978). *Task panel reports* (Vol. 3, Appendix). Washington, DC: U.S. Government Printing Office.

Watson, C. G., & Buranen, C. (1979). The frequency and identification of false positive conversion reactions. *Journal of Nervous and Mental Disease, 167,* 243–247.

Wedding, D. (1986). Neurological disorders. In D. Wedding, A. M. Horton, & J. Webster (Eds.), *The neuropsychology handbook* (pp. 59–79). New York: Springer.

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