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The Prevalence and Significance of Medical Illness Among Chronically Mentally Ill Outpatients

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ABSTRACT: The prevalence and significance of medical illnesses were examined in a sample of chronically mentally ill patients from an urban community mental health program. Eighty-eight percent had at least one significant medical illness, 51% had at least one previously undiagnosed illness and 53% were judged to be in need of some form of medical attention. The bulk of these illnesses were typical of primary care problems. In terms of causal significance, nearly as many medical illnesses appeared to be the result of the psychiatric disorder (18%) as vice versa (22%). Community mental health programs should make provisions for the medical needs of patients in comprehensive management programs.

Over the past several decades, numerous investigators have noted the substantial frequency with which psychiatric patients are found to be suffering from medical illnesses (Marshall, 1949; Herridge, 1960; Burke, 1972; Burke, 1978; Barnes et al., 1983). Estimates range from 15% (Karasu et al., 1980) to 83% (Phillips, 1937) among hospitalized patients and from 20% (Muecke & Krueger, 1981) to 58% (Davis, 1985) among clinic patients. When judgments have been made that the medical disorder has some causal influence on the associated psychiatric syndrome, estimates range from 2.4% (Pennick & Carrier, 1967) to 46% (Hall et al.,

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1980) in psychiatric inpatients and from 9% (Hall et al., 1978) to 47% (Koryani, 1972) in outpatients. As a group, these kinds of medical conditions have come to be called "mimicks" or "masqueraders" of functional psychiatric illness or as "somato-psychic" conditions in their own right (Hendrie, 1978; Hall, Gruzenski & Popkin, 1979; Hall, 1980; Martin, 1983). As many as 46%–80% of these medical disorders are unrecognized and undiagnosed (Johnson, 1968; McGuire & Granville-Grossman, 1968; Koryani, 1972; Hall et al., 1978; Koryani, 1979; Hall et al., 1980).

Although this literature has existed for decades, only recently have some reports (Koryani, 1979; Hall et al., 1980; Hall et al., 1981; Hoffman, 1982) begun to influence political process. Such papers have been cited to support the beliefs 1. that significant numbers of psychiatric patients are or may be suffering from unrecognized, undiagnosed and untreated medical conditions, 2. that these medical conditions are substantially responsible for the signs and symptoms of the psychiatric syndromes in these individuals, and 3. that these medical conditions are erroneously and ineffectively being treated with customary mental health methods to the detriment of patients and at considerable cost to taxpayers. Sponsored by members of increasingly influential patient-advocate groups, statutory changes have been sought to change clinical practice. In Oregon (Senate Bill 675, 1983), as in a few other states such as California (Chapter 208, 1982), lawmakers have obliged this view and enacted legislation that specifically mandates an increased level of diagnostic testing for medical disease. We report here one of several studies (Faulkner et al., 1986; Faulkner, et al., 1987) undertaken in Oregon as part of legislative mandate to determine the extent to which undiagnosed medical problems are either causative or influential in the course of chronic mental illness.

METHOD

One hundred of 360 CMI patients treated in a community support unit of an urban community mental health clinic in Portland, Oregon, were identified randomly and asked to participate in the study. After giving informed consent, each participating patient received an evaluation that included an extensive health and medical questionnaire, a brief oral general medical history focusing on current symptoms, a physical examination including neurologic examination and the Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975). In addition, laboratory studies including a 20 item automated chemistry panel (SMA-20), a complete blood count (CBC) with differential, an erythrocyte sedimentation rate, a serological test for syphilis, and a serum free thyroxine level were obtained on each patient who had not recently (three months) received them.

FINDINGS

Demographics. Of the 100 patients identified, 43 completed the evaluations; the others either actively or passively declined the medical evalu-

ation over the nine month study period. The average age of the 43 (43%) patients was 43 years. The group included 27 (63%) men and 16 (37%) women. Thirty-six (84%) were unemployed.

Psychiatric Diagnoses, Morbidity, and Treatment. Fifty-six percent (N=24) of the sample had a primary diagnosis of schizophrenia, 35% (N=15) had an affective disorder and only 9% (N=4) had some other DSM III diagnosis.

The average age of first contact with a psychiatrist or first psychiatric hospitalization was 26 years. One estimate of the severity of the psychiatric conditions in the group is the duration of psychiatric illness. The mean was 16 years, the range was 2–40 years and the median was 15 years. Another crude indicator of the degree of psychiatric morbidity within the group is an estimate of the number of lifetime psychiatric hospitalizations. Because of the potential for unreliable estimates from patients, we elected to err in the direction of underestimation and defined the "least number of psychiatric hospitalizations" as those that were documented in the medical record or could be specifically identified by the patient (place and approximate date). The mean of the best estimate of the least number of verifiable hospitalizations was 7.5, the range was 1–30, and the median was 5.

In addition to case management services, 41 (95%) patients were currently being treated with psychotropic medication. Thirty-seven (86%) were receiving some type of antipsychotic, 11 (23%) a lithium preparation, 9 (21%) an antidepressant, and 21 (49%) an anticholinergic.

Prior Medical History. Thirty-seven (86%) had medical conditions diagnosed prior to the study. Table 1 delineates the range of conditions.

Eleven (23%) patients reported using a total of 24 prescribed medications for nonpsychiatric purposes. Examples are chlorpropamide, isoniazid, phenytoin, digoxin, furosemide, hydrochlorthiazide, and metoprolol.

Current Physical Symptoms. Thirty-eight (88%) patients acknowledged at least one physical symptom of concern at the time of the examination which was judged by the examiner to be unassociated with their psychiatric disorder or psychotropic medication. The average was 6.2 physical symptoms per patient. The range was 1 to 50 and clearly tended to vary with the amount of time allowed to catalog symptoms. Still, only five individuals denied any ongoing physical symptoms.

Physical Findings. Physical examination findings (Table 2) were prevalent though seldom of major medical importance. Laboratory normal ranges in clinical practice are mean +/– 2 SD. For illustration, Table 3 compares the prevalence of abnormalities using this criteria in addition to a presumably less sensitive but more specific one: +/– 3 SD.

Table 1
Prior Medical Conditions (N = 43)

Condition	*Number of Cases*	*Condition*	*Number of Cases*
head trauma	6	anemia	1
positive tuberculin skin test	6	breast nodule	1
hernia	5	cholecystitis	1
arthritis	4	obstructive lung disease	1
allergic rhinitis	3	diverticulitis	1
appendicitis	3	folate deficiency	1
hypertension	3	galactorrhea	1
obesity	3	glaucoma	1
thyroid abnormality	3	hypogammaglobulinemia	1
urinary tract infection	3	mesenteric lymphadenopathy	1
venereal disease	3	nephrolithiasis	1
diabetes	2	peptic ulcer disease	1
major hearing problem	2	rheumatic heart disease	1
hepatitis	2	seizure disorder	1
hyperlipidemia	2	stress incontinence	1
cardiac arrhythmia	2	thyroglossal duct cyst	1
splenectomy	2	ureteral obstruction	1
basel cell cancer	2		

Table 2
Physical Exam Findings (N = 43)

Finding	*N*	*%*
Hypertension		
(S 155 or D 95)	6	14
Weight		
10% high limit	14	33
low limit	3	7
Any PE abn. (not neuro)	37	86
4 or more	13	30
Any neurological finding	31	72

Comparing the frequency distribution of each lab test in the patient group with the respective normal population distribution (t=test) revealed statistically significant differences for higher glucose, lower blood urea nitrogen, higher chloride and lower bicarbonate, higher protein and albumin, higher triglyceride and cholesterol, higher alkaline phosphatase, and higher hematocrit and hemoglobin. However, in most cases these differences were so small that, while they were statistically significant,

Table 3
Laboratory Abnormalities

Finding	*N*	*%*
Abnormal (> +/– 2 S.D.) Values		
2 or more from SMA-20 & CBC	32	74
Abnormal (> +/– 3 S.D.) Values		
SMA-20: 2 or more	15	35
CBC: 1 or more	15	35
SMA-20 & CBC: 2 or more	20	47

they did not appear clinically significant. The subset that did appear clinically significant included only triglycerides, cholesterol and perhaps glucose.

Using univariate correlation coefficients and correcting p-values for the number of hypotheses tested (Grove and Andreasen, 1982), there were no significant correlations found between the number of laboratory abnormalities of an individual and that person's age, sex, age of first psychiatric treatment, number of psychiatric hospitalizations, number of prior medical diagnoses or conditions, number of symptoms reported at the evaluation or number of medications used.

Medical Diagnoses. Provisional clinical diagnoses were created where possible to integrate meaningful findings in the history, examination, and laboratory studies in each patient (Table 4). Past medical diagnoses of little ongoing significance, e.g., an old history of cholecystectomy, were not included unless they had some current clinical significance. Signs and symptoms of adverse drug syndromes, e.g., parkinsonism or tardive dyskinesia, were not included. With these exclusions there were 86 medical diagnoses assigned to 38 (88%) of the 43 patients; five (12%) patients did not receive a current provisional medical diagnosis.

Causal Significance. One of five possible judgments about the "causal" nature of the relationship between medical findings in an individual and his primary psychiatric syndrome was postulated:

1. the medical disease caused the psychiatric syndrome,
2. the medical disease exacerbated the psychiatric syndrome,
3. no discernable causal relationship,
4. the psychiatric syndrome exacerbated the medical disease,
5. the psychiatric syndrome caused the medical disease.

In each case, one of us (RAM) made this heuristic judgment for each of the separate medical diagnoses following each examination (Table 5).

Table 4
Present Medical Conditions

Condition	*Number of Cases*	*Condition*	*Number of Cases*
hyperlipidemia	8	atherosclerosis	3
glucose intolerance	6	colitis	2
brain damage	5	dermatitis	2
chronic obstructive lung disease	5	hyperuricemia	2
positive tuberculin skin test	5	urinary tract infection	2
arthritis	4	peripheral neuropathy	2
morbid obesity	4	seizure disorder	2
abnormal liver function tests	3	major vision or hearing impairment	2
medical sequelae of alcoholism	3		

The factors used in making these judgments included:

1. an appropriate temporal relationship, e.g. brain damage preceding a psychiatric syndrome in a case of "medical causes psychiatric;"
2. lack of antecedent history, e.g. absence of significant prior personal or family history of psychiatric symptoms in the same case;
3. parallel severity, e.g. severe psychiatric symptoms that result from, say, hypercalcemia should require more than a mild elevation of serum calcium;
4. a putative pathophysiologic mechanism, e.g., chronic obstructive lung disease resulting in low pO_2 and high pCO_2 effects neuronal metabolism;
5. appropriate references in the medical and psychiatric literature, e.g. the prevalence of psychiatric syndromes in individuals with temporal lobe epilepsy;
6. common sense, e.g. a woman whose fibrotic pleura, atelectasis and paralyzed diaphragm were "caused" by schizophrenia via a self-inflicted gunshot wound to the chest.

"Cause" is distinguished from "exacerbation" by the inference that: 1) for cause, the result would not have likely occurred without the antecedent, and 2) for exacerbate, the antecedent did not appear to be necessary nor sufficient to account for the result but (arguably) aggravated, intensified or precipitated it at a particular time and level of severity.

Of the 86 diagnoses, 3 (3.5%) were judged to be the primary "cause" of the psychiatric syndrome, all three reflecting significant prior brain

Table 5
Significance of Medical Conditions

	N	*Percent*
Apparent Causal Relationship		
1-Medical causes Psychiatric	3	3.5
2-Medical exacerbates Psychiatric	16	18.6
3-No apparent relationship	51	59.3
4-Psychiatric exacerbates Medical	10	11.6
5-Psychiatric causes Medical	5	5.8
Medical Diagnosis		
previously known	54	62.8
new	32	37.2
Medical follow-up		
not needed	53	61.6
needed	33	38.4
Medical Diagnosis new and follow-up needed		
number of diagnoses (N = 86)	26	30.2
number of patients (N = 43)	20	46.4

trauma. Sixteen medical diagnoses (18.6%) were judged to be an exacerbating factor in the patient's psychiatric syndrome. Examples of these medical conditions included alcohol withdrawal syndrome, arthritis, atherosclerosis, brain damage, chronic obstructive pulmonary disease, diabetes, seizures and vision and hearing problems. For fifty-one diagnoses (59%) a plausible causal or exacerbating relationship in either direction could not be identified. Ten (11.6%) medical diagnoses appeared to be exacerbated by psychiatric conditions. These included medical complications of alcohol abuse, post-traumatic arthritis, colitis, hepatitis, obesity, seizures (post-traumatic), and major symptoms and disabilities resulting from trauma. Five (6%) of the medical diagnoses were judged to be the result of the psychiatric condition and included major trauma, hypertension, and parasitic infestation.

Fifty-four (63%) of the medical diagnoses were either known to the patient at the time of the examination or available from the clinical record before the evaluation. Thirty-two (37%) conditions in 22 patients were "new" in the sense of not being known to either the patient or his mental health case managers. Whether new or previously known, not all identifiable medical conditions were necessarily in need of any particular clinical action, further evaluation, or active follow-up and might be viewed as clinically insignificant. Fifty-three (62%) medical diagnoses fell in this

category when judged dichotomously by one of us (RAM). Nonetheless, 33 (38%) medical diagnoses in 23 individuals did appear to warrant further clinical attention.

Since most patients had more than one provisional medical diagnosis, it is useful to examine whether clinically significant conditions cluster in specific patients. Twenty-one patients (49%) had at least one medical condition that was judged both new and in need of some further medical activity. These included 26 (30%) of the medical diagnoses that were made in the sample and presumably would have remained undiscovered for an unknown period of time had the study not occurred. The most common conditions in this category included hyperlipidemia, hypertension, liver function abnormalities, uncontrolled diabetes, and vision and hearing problems.

DISCUSSION

Methodologic features in our study that limit generalizability of the findings include: 1) the limited response rate of 43%, 2) the fact that we studied only one clinic sample, 3) the absence of established interrater reliability for the examination or judgments about causality and significance, and 4) the lack of empiric validation of these judgments by long term clinical follow-up. We do plan a limited follow-up of our sample and at that time will also investigate gross psychiatric and socio-demographic differences that may have distinguished participants in the study from nonparticipants.

Nonetheless, our findings regarding the prevalence of medical illness in this CMI sample are in general agreement with the bulk of published reports and argue against selection bias. Clinically, it was a straightforward task to find medical disease in need of treatment in this group, even "new," previously unrecognized disease. However, the psychiatric significance we attribute to a large proportion of these particular diseases differs with the predominant conclusions in the literature, at least in terms of causal influence and implications for the CMI population.

A major theme in the literature about this issue has been the notion that many of these medical diseases "cause or exacerbate" the psychiatric syndrome. This, as the argument goes, erroneously leads patients to state hospitals or psychiatric outpatient clinics rather than to primary care or specialty medical facilities. In our admittedly small sample of quite seriously and chronically mentally ill individuals (the average of whom had been ill 15 years and had been hospitalized psychiatrically at least 8 times), no dramatic, occult, reversible "mimicks" were found. However, during data collection we reviewed all available records on these patients and were impressed by how many times these patients had in fact already had extensive and expensive (and negative) medical and neurological workups that had included computerized tomographic scans,

electroencephalograms, spinal fluid studies, exotic biochemical studies and the like. This tended to occur early in their illnesses when they still had health insurance and the financial support of their relatives.

Rather, we found routine, primary care complaints and diseases to be commonplace. We were impressed by the amount and residual disability of previous physical trauma from "accidents," assaults and self-inflicted damage that often appeared to be the result of inadequately treated mental illness, neglect, or poverty.

The bulk of patients, indeed, were medically ill; however, the hypothesis that generated legislation in Oregon and other states that many psychiatric patients could be "cured" if only more medical testing and treating would be done did not appear to hold up in this sample. In the 1980's the chronically mentally ill display tragically unmet basic needs for housing, shelter, protection, social support, food, and money. Their unmet health care needs appear just as basic and should be recognized as an integral part of community mental health treatment but they do not seem to be the root cause of the mental illness.

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