

Co-occurrence of Psychiatric and Medical Morbidity in Primary Care

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This study examines the co-occurrence of psychiatric and medical morbidity in primary care patients utilizing a health care clinic in Marshfield, Wisconsin. Previous research has shown that individuals with psychiatric disorders have higher rates of medical illness than people without psychiatric illness, but most prior studies have tended to confound the measures of psychiatric and medical morbidity. In addition, appropriate controls for bias resulting from different medical utilization patterns have sometimes been absent. The present study reports the medical diagnoses of persons who had been assessed for psychiatric disorder with a standardized psychiatric interview using research diagnostic criteria independent of their medical assessment. Psychiatric diagnoses are analyzed in relation to medical diagnoses at the time of the interview and for a one-year period—six months before and six months after that date. The results indicate that persons with mental disorder diagnoses have significantly more morbidity for the one-year study period. Although considerable congruence exists in the physical diagnoses recorded for both groups, those with mental disorders are more likely to have diagnoses of the digestive and genitourinary systems. Some sex differences are also explored.

While there is now much evidence that psychiatric morbidity is commonly seen in general medical practice and that persons with mental disorders exhibit higher than average levels of physician utilization, relatively little is known about the medical profiles of persons with a mental disorder. Do persons with a mental disorder have more physical disorders and different types of medical problems

compared with persons without a mental disorder?

To the extent that differences between the medical profiles of persons with and without a mental disorder are detected in studies carried out in ambulatory settings, they may either reflect a causal association between mental and physical disorder or a tendency for certain types of people (under specifiable circumstances) to be vulnerable to both types of disorder. Alternatively, observed relationships between mental disorder and medical diagnoses in ambulatory care settings may reflect a tendency for persons with mental disorders to somatize their mental and emotional problems and then to seek care in these settings. Each of the above interpretations is consistent with recent psychiatric and sociological conceptions.¹⁻⁴

Prior studies of the co-occurrence of psychiatric

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and medical diagnoses have been limited in a variety of ways. One limitation has been a high degree of underreporting of mental disorders in routine recordings; this will be demonstrated in these data. A related problem has been the tendency to confound the measures of physical and psychiatric diagnoses, which occurs in studies that rely on the same physicians to provide both the psychiatric and medical diagnosis, either by direct report or by chart diagnosis.^{5,6}

One of the ambiguities in prior research carried out in primary care settings is whether differential rates of medical diagnoses reflect a distinct pattern of morbidity or a distinct pattern of physician utilization such as high rates of use. For example, differences in number of diagnoses of the gastrointestinal system may either reflect a truly higher degree of symptomatology or differences in readiness or propensity to consult physicians with gastrointestinal symptoms. To determine whether different diagnostic profiles represent anything more than varying patterns of use, it is important to control for the rates of use as a proxy for readiness to seek care.

The present paper compares the medical profiles of a sample of persons with diagnosed mental disorders with the medical profiles of a group without mental disorders to determine whether persons with mental disorder diagnoses tend to be overrepresented in specific categories of physical diagnosis. The study was based upon a sample of adults who presented themselves to the Internal Medicine Section and the Family Practice Department of a clinic in Marshfield, Wisconsin. In addition to routine medical care, the study subjects were assessed by independent investigators using a structured psychiatric interview to determine the presence of mental disorders. Medical diagnoses were routinely recorded according to the medical diagnostic categories included in the eighth revision of the International Classification of Disease adapted for hospital use in the United States (H-ICDA).⁷

Methods

Data were collected in the Marshfield Clinic in Marshfield, Wisconsin, a 170 physician multispecialty group practice located in a semirural area in central Wisconsin. The town has a population of approximately 17,000, with 40,000 persons residing

in the surrounding area. The clinic provides primary health care services for residents in this immediate area through both a prepaid group practice plan and a fee-for-service arrangement. Primary, specialty medical, and mental health care services are physically and administratively integrated.

Data for this paper are drawn from a study principally focused on the prevalence of mental disorders among primary care patients and the accuracy of primary care physicians' (both internal medicine and family practice specialists) routinely recorded diagnoses of mental disorder.⁸ In that study, a total of 1,072 adult primary care patients (aged 18 years and older) who resided in the greater Marshfield Zip code area and who used the Marshfield Clinic between January and March 1978 were assessed for the presence of a mental disorder. The study design included a two-stage case detection procedure, which is discussed briefly here and in more detail by Hoepfer et al.⁸ The first stage used the 30-item General Health Questionnaire.⁹ Based on the questionnaire screening results, a stratified subsample of 247 patients was selected for a comprehensive psychiatric interview using the Schedule for Affective Disorders and Schizophrenia—lifetime version (SADS-L).¹⁰ These interviews were conducted by three trained interviewers who were from the Department of Psychiatry (one psychiatrist and two psychiatric social workers). Interview results were not made available to the primary care clinicians at Marshfield.

The method of psychiatric case identification reported in this paper is the SADS-L assessed on the sample of 247 patients. In the description below, SADS-L positives ($n = 124$) include all those individuals with at least one research diagnostic criteria (RDC) diagnosis. Diagnoses of the clinical staff at the Marshfield Clinic are used as indicators of medical morbidity. For analyses of data from the study entry visit, these diagnoses are almost exclusively from the primary care departments in the study (internal medicine, family practice, and pediatrics). Diagnoses during the one-year period surrounding the study visit (six months before and six months after the study entry date for each patient) are taken from all Marshfield Clinic providers.

At each visit to the Marshfield Clinic, one or more diagnoses may be routinely recorded for each patient. Because of this, and because of multiple visits within the study period, any individual

may be represented in more than one diagnostic category and with multiple diagnoses within any given category. Therefore, to assess medical morbidity among populations with and without mental disorder diagnoses, two measures are used within each medical diagnostic (H-ICDA) category. The first is the mean number of medical diagnoses per person. The second is the percentage of persons having at least one diagnosis within each disease category.

To some degree the overrepresentation of individuals with mental disorders in certain medical diagnostic categories may not be related to increased physical morbidity; rather, it may result from increased nonpsychiatric utilization of those individuals in this setting.¹¹ To control for utilization differences, the percentage of individuals given a medical diagnosis within a general category at least once is included as a dichotomous dependent variable. Thus, an individual who frequently seeks care for a somatic problem is counted only once in that somatic category, lessening the effect of utilization bias.

Results

Tests of association between psychiatric and medical diagnoses were made for two points in time: at the study entry date, and for a 12-month period surrounding entry to the study, ie, the six-month period preceding and following study entry. Because the results show the same general pattern, only the one-year findings are presented in tabular form.

The basic findings of the one-year study period are summarized in Table 1. Data are presented on both the average number of diagnoses received and the percent of the group diagnosed by mental disorder status from the SADS-L for each major H-ICDA category. Several categories of the H-ICDA (neoplasms, II; diseases of the blood and blood-forming organs, IV; delivery and complications of pregnancy, childbirth, and the puerperium, XI; congenital anomalies, XIV; and certain diseases peculiar to newborn infants, XV) were not included for analysis because their prevalence in the total Marshfield population was too low to detect significant differences with any precision if they existed. The last row of the table documents that during the study year individuals with at least one RDC disorder receive 49 percent more

H-ICDA diagnoses of all types than those without an RDC disorder. In part, this finding reflects multiple diagnoses in some categories. In addition, the RDC disorder group is diagnosed in an average of 18 percent more different categories than those without disorder. These differences are only partially due to diagnoses in the mental disorder category made at the Marshfield Clinic. When these diagnoses are removed, the RDC disorder group has 31 percent greater mean diagnoses per person per year ($P = .011$) than those with no diagnoses.

Examination of the first two columns in Table 1 reveals that patients with an RDC disorder received significantly more diagnoses in four diagnostic categories. Over the one-year period, patients with RDC disorders were more likely than those without RDC disorders to receive diagnoses in the following areas: digestive (IX), genitourinary diseases (X), and physical signs, symptoms, and ill-defined conditions (XVI). In addition, and as expected, those with RDC disorders also received more mental disorder diagnoses (V).

When the percentage of each group with a diagnosis in a specific category was examined (Table 1), the significantly higher representation of the RDC group in the mental disorders (V) and genitourinary (X) categories remained. The percentage of the population with a diagnosis in the digestive (IX) and physical signs and symptoms (XVI) categories was higher in the RDC disorder group, but these differences did not reach the conventional $P = .05$ level of significance. Thus, the data suggest that the larger amount of co-occurrence of mental disorder with diseases of the digestive system and with the signs and symptoms category is in part a reflection of higher use by those with mental disorders.

Although not displayed, these results are similar to patterns of co-occurring medical and psychiatric morbidities at the study entry date except that the tendency for those with positive SADS-L screening results to receive more diagnoses of the physical signs and symptoms category was not significant.

Sex Differences

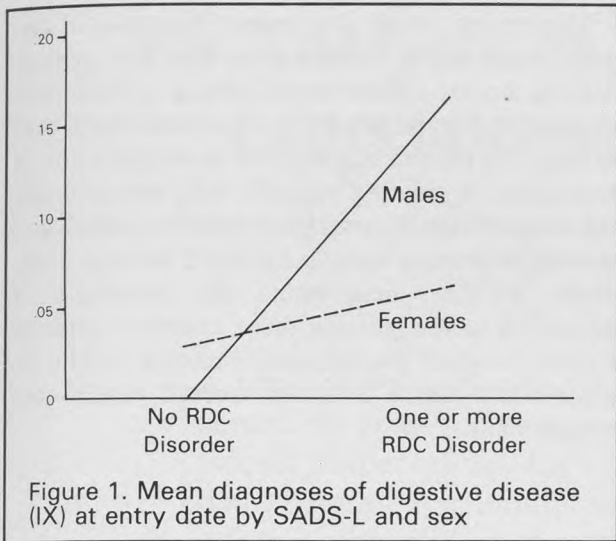
In a systematic attempt to test the hypothesis that differences in medical and mental co-occurrence patterns between the sexes exist, several analyses of variance using patients' sex and

Table 1. One-Year Study Period: Mean Number of Diagnoses and Percentages of Individuals in Medical Diagnostic Categories by Presence of Mental Disorder (RDC) Diagnosis				
Medical Diagnostic Category	Mean Diagnoses		Percent in Category	
	SADS-L Positive (n = 124)	SADS-L Negative (n = 123)	SADS-L Positive (n = 124)	SADS-L Negative (n = 123)
Infective and parasitic diseases (I)	0.26	0.16	16.1	11.4
Endocrine, nutritional, and metabolic diseases (III)	0.79	0.33	23.4	14.6
Mental disorders (V)	1.93	0.24*	33.1	11.4**
Diseases of the nervous system and sense organs (VI)	0.85	0.93	41.9	37.4
Diseases of the circulatory system (VII)	0.48	0.39	16.9	12.2
Diseases of the respiratory system (VIII)	1.24	1.14	50.0	48.8
Diseases of the digestive system (IX)	1.23	0.60*	28.2	23.6
Diseases of the genitourinary system (X)	0.67	0.33*	28.2	16.3**
Diseases of the skin and subcutaneous tissue (XII)	0.44	0.62	22.6	23.6
Diseases of the musculo-skeletal system and connective tissue (XIII)	0.56	0.33	23.4	15.4
Physical signs, symptoms, and ill-defined conditions (XVI)	1.84	1.11*	58.9	52.0
Injuries and adverse effects (XVII)	0.74	0.88	33.9	39.8
All other codes† (XVIII)	2.28	1.82	72.6	69.9
Total‡	13.62	9.15*	4.64	3.93*

*Statistically significant on *t* test, $P < .05$
 **Statistically significant on χ^2 test, $P < .05$ (to perform test, 2×2 tables are formed with people in H-ICDA category or not on one dimension, SADS-L on other)
 †This category includes supplementary classifications and classification of operations and treatments
 ‡Total represents mean number of all H-ICDA diagnoses in the first two columns; it does not total due to rounding and deleted categories. In the last two columns it represents mean number of diagnostic categories per person

presence or absence of RDC disorder as main effects and including interaction terms were estimated. Only in the categories of digestive diseases and genitourinary diseases are the findings noteworthy.

In addition to the tendency for SADS-L positive patients to receive more diagnoses involving the digestive system, there is a statistically significant "sex by mental disorder" interaction for the mean number of diagnoses of digestive diseases at the



study entry date ($F = 4.20, 1, 243 \text{ df}, P < .05$). Figure 1 reveals a greater co-occurrence of digestive and psychiatric morbidity in male patients than found in female patients. This would imply that among male primary care attenders, there may be value in examining digestive complaints further to assess any psychopathology.

In contrast to digestive diseases, the significant trends shown in the genitourinary category appear to be primarily due to the relatively large proportions of female patients with mental disorder diagnoses who also receive diagnoses in the genitourinary category. For example, in the one-year period surrounding the study entry date, 39 percent of all female patients with RDC disorder had at least one diagnosis in this category vs 22.5 percent for those women with no RDC diagnosis. During the same period, 10.6 percent of the male patients with RDC diagnoses received genitourinary diagnoses vs 7.7 percent without an RDC diagnosis.

In both the one-year and study-entry data, female patients received more genitourinary diagnoses on the average than male patients. Unexpectedly, mental disorder was not a statistically significant predictor of genitourinary diseases in the analysis of variance. Apparently, some of the difference in genitourinary diagnoses as a function of mental disorder, shown in Table 1, is due to the male-female distributions on the two variables in question. No significant interaction between sex and mental disorder was detected in relation to diagnoses of the genitourinary system.

Discussion

These results show that persons with mental disorders who are seen in a general medical setting present a wide range of medical morbidity, with diagnoses recorded in virtually all H-ICDA categories. The distribution of physical diagnoses by H-ICDA category recorded for persons with mental disorder is generally similar to the diagnostic distribution for persons without mental disorders. However, compared with persons without RDC diagnosed mental disorder, the overall medical profiles of persons with mental disorder reveal significantly more treated morbidity over a one-year period.

In interpreting these co-occurrence patterns, it is important to remember that in all cases comparisons are being made in general categories. The H-ICDA categories, such as digestive and genitourinary diseases, include many types of illnesses with varying severity. Further, the SADS-L positive patients represent a clinically diverse group. This may lead to a clouding of true co-occurrence patterns between specific medical diagnoses and mental disorders. Because the sample was too small for detailed analyses at the diagnostic-specific level, the findings described are suggestive of general trends.

Data from this nonprospective type of study showing significant association can be explained as depicting true disease co-occurrence or as illustrative of somatization patterns of individuals with mental disorders. In diagnostic categories where primary care physicians are trained to make accurate diagnoses, eg, digestive and genitourinary diseases, the former explanation may be more plausible. By contrast, data from the physical signs, symptoms, and ill-defined conditions category are more likely to be explained by the latter. Both explanations may be important in the overall picture, but it must be cautioned that the physician diagnoses, unlike the RDC disorders, were not based on rigorously defined research criteria. Thus, these analyses are only illustrative of this issue, indicating the need for further research.

One category in which medical diagnoses were expected to be overrepresented in persons with RDC-diagnosed mental disorder was physical signs, symptoms, and ill-defined conditions. While in all instances the differences in this category as a function of mental disorder were in the expected direction, when differences in patterns of utiliza-

tion were controlled, the relationship detected in the 12-month morbidity data was not statistically significant. This finding was somewhat contrary to the published literature.

Some sex differences were detected in these data, particularly among the genitourinary and digestive disease categories. Further research is needed to test the generalizability of these sex differences in primary care settings and to determine whether such results reflect actual differences in the co-occurrence of psychiatric and physical morbidity among adult men and women or, alternatively, varying tendencies between the sexes in modes of somatizing mental disorder.

No statistically significant differences were found in other H-ICDA disease categories, including respiratory and circulatory categories, which had shown such associations in previous research. Perhaps these associations hold for general community populations, but not for primary care attenders as an identifiable group. While significant differences did not emerge, it is noteworthy that the relationships were almost all in the predicted directions, ie, greater average medical diagnoses for SADS-L positive patients. In addition, in almost all H-ICDA categories, the percentage of SADS-L positive patients was higher than the percentage of SADS-L negative patients.

In terms of implications for the delivery of health services, these findings underscore the need for a more thorough psychosocial examination of the physical complaints that are routinely seen in primary medical practice. The need for such examinations is highlighted by the greater treated medical morbidity of patients with mental disorders documented in the one-year prevalence rates of physical diagnoses. This is generally consistent with the underlying philosophy of family practice. Whether patterns of health care use and diagnosis are related to mental disorder differently among internal medicine vs family practice patients could not be explicitly explored with this limited sample. However, a study recently completed¹² in the same setting may allow such a comparison in the near future.

Additional studies in this area in primary care settings are needed to more firmly establish the tentative findings suggested here. In particular, sex-specific and diagnostic-specific (both mental and physical) studies of primary care populations would be an important research development.

The present study documents how mental disorder tends to be associated with a few general medical disease categories according to diagnoses recorded by physicians in an organized health care setting. The results suggest that an examination of techniques of treating patients with physical and psychiatric disorders is important for research and training in primary care and related medical disciplines. Further, heightening the sensitivity of physicians to recognizing these common patterns of co-occurrence should lead to more accurate diagnosis and hence to better overall health care management.

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