Diagnoses, Requests and Timing of 503 Psychiatric Consultations in Two General Hospitals

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Abstract- The high comorbidity of medical and psychiatric diagnoses in the general hospital population requires collaboration between various medical fields to provide comprehensive health care. This study aims to find the rate of psychiatric consultations, their timing and overall diagnostic trend in comparison to previous studies. Tehran University of Medical Sciences has got an active psychiatric consultation-liaison service which includes services provided by four faculty psychiatrists (two full-time and two part-time). This study was done in two general hospitals by simple sampling in available cases. For each consultation, a board-certified faculty psychiatrist conducted a clinical evaluation based on DSM-IV-TR. Other than psychiatric diagnoses, socio-demographic variables, relative consultation rates, reasons for referral, medical diagnoses and the time stay after admission were assessed. Among 503 patients who were visited by the consultation-liaison service, there were 54.3% female with mean age of 39.8 years. In 90.1% of consultations, at least one DSM-IV-TR diagnosis was made. The most frequent diagnosis groups were mood disorder (43.5%), adjustment disorder (10.9%) and cognitive disorder (7.6%). In about 10.9% of the consultations, multiple psychiatric diagnoses were made. The mean length of hospital stay before the consultation was 12.56 days (range=1-90, SD=13). Based on our findings, the mood and cognitive disorders still remain major foci of consultation-liaison practice in general hospitals; however our findings showed high rate of adjustment disorders diagnosis and ambiguous request for psychiatric consultation which need more interdisciplinary interaction.

Introduction

Psychiatric disorders have been observed to occur in as many as two-thirds of inpatients in general hospitals (1). The high concurrence of medical and psychiatric diagnoses in the general hospital population requires collaboration between various medical fields and psychiatry to provide comprehensive health care (1). The consultation-liaison psychiatrist is called upon to evaluate and treat a wide variety of psychiatric disorders in patients with general medical disorders (2). Most studies concerning mental health, particularly those dealing with consultation liaison interventions have mentioned an association between psychiatric co-morbidity and hospital stay (3). Multiple factors may lead to a psychiatric consultation: new or preexisting patient issues, non psychiatric staff issues, and the theoretical approach of the psychiatric consultant (4). Previous studies confirmed that early psychiatric consultation improves the outcome, as universally measured by length of stay (5,6). Although the increasing number of researches addressing the demographic assessment and intervention patterns of psychiatric consultations (1,7,8), few studies have examined the pattern of psychiatric consultation in developing countries and how these factors may differ in these countries. Despite methodological differences and a vast disparity in the number of cases reviewed in each

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study, the rate of psychiatric consultation remained in the range 0.9% to 6% for studies in which this rate was mentioned (7-12) .The rates of referred cases in which a psychiatric diagnosis (V codes excluded) was made ranged from 51% to 98% for studies in which this rate was specified (12-15).

In recent years, due to the limitations induced by insurance companies, the length of stay in general hospitals has been shortened, which consequently reduces the amount of time a patient is available for an inpatient psychiatric consultation (10,16-18).

Iran has a young population; however with the aging of the population and the increasing prevalence of cognitive disorders, the contemporary consultation-liaison psychiatrist may be confronted with more cases of delirium and dementia (19). The greater awareness of the diagnosis and treatment of depression would mean the better care given by non psychiatric physicians in cases of depression. Of course uncomplicated cases of depression might be managed without any formal psychiatric consultation (20,21). We believe that the persistent high rate of considerable substance abuse in the general population (particularly in urban populations) together with the greater awareness of substance abuse by other physicians might result in the need for more psychiatric consultations for evaluation and management of substance-related illness (22).

The availability of recourses for consultation-liaison services varies greatly from one country to another (2), but in Iran its variation from one hospital to another leads to different practice and guidelines.

Modern psychiatry in Iran began with the foundation of Tehran University in 1934 and there are currently 8950 psychiatric beds distributed among 23 psychiatric and general hospitals (23). Although more than 1000 psychiatrists are practicing throughout the country, there is not any center to educate consultation-liaison psychiatry as a subspecialty in Iran; nevertheless there are some psychiatrists in Iran who work as consultation-liaison psychiatrists in general hospitals. These are the ones who are interested in doing some research such as epidemiologic studies in the hope to launch this subspecialty in Iran.

This study aims to seek whether the rate of psychiatric consultations and their timing are affected by these contemporary incentives. We also undertook this study to examine if referral rates and overall diagnostic trends in psychiatric consultation observed in prior studies still held true in the era of DSM-IV/DSM-IV-TR in our country and finally to find out if a new pattern of referral and diagnosis is actually emerging.

Materials and Methods

Imam Khomeini and Shariati hospitals both affiliated to Tehran University of Medical Sciences and located in the center of Tehran with a total of 1528 beds, are two of the largest academic hospitals in Tehran, serving a large region of center of the city. Department of psychiatry maintains an active adult psychiatric consultation-liaison service, with services provided by four faculty psychiatrists (two full-time and two part-time) and two clinical nurse specialists. These board-certified faculty psychiatrists conduct the clinical evaluation to assess the patients and to provide the diagnoses and the treatment plan.

Ongoing data for the 503 consultations conducted by faculty psychiatrists in calendar year 2007 were gathered and examined. There was a unified structure for responding to the consultations. The psychiatrists answered consultations in this structure and then the researchers extracted the data. Consensual structure for psychiatric consultation was made based on expert opinion. There was a logical sequence which consists of positive findings, diagnosis, recommendations and other important points in patient's history.

Diagnoses were classified according to DSM-IV-TR diagnosis groups. Multiple psychiatric diagnoses for an individual patient were considered as a "case" of each diagnosed illness.

Statistical analysis

One-way Analysis of variance followed by Dunette multiple comparisons were used to compare the log length of stay from admission to consultation. Logarithmic transformation was applied as this variable was positively skewed. The association of type of request with psychiatric diagnosis and medical ward was assessed using Chi-square test. As these nominal variables had too many levels, it was decided to categorize them in the analysis. P-value<0.05 was considered statistically significant.

Result

In 2007, there were 42121 admissions to Shariati and Imam Khomeini hospitals. 503 consultations were completed during that period resulting in a consultation rate of 1.19%. Patients seen by the consultation-liaison service were 54.3% female, 63.6% married, 86.5% were educated and had a mean age of 39.8 years (SD=16.77, range: 11-91). The overall rate of psychiatric diagnoses was 1.01 per patient. Diagnostic categories based on

DSM-IV-TR are summarized in Table 1. The top part of Table 1 lists the results for the 453 consultations in which at least one psychiatric diagnosis was given. The bottom part shows the data for other consultations, including those in which more than one psychiatric diagnosis was made. In 90.1% of consultations, at least one DSM-IV-TR diagnosis was made. The right most column of Table 1 shows the length of stay in different psychiatric diagnosis. Based on these findings no significant relationship was observed in various psychiatric diagnoses in terms of mean log length of stay from admission to consultation and their age.

Table 2 lists, in descending order of frequency, the primary discharge diagnoses time for the 503 individuals included in our study. General internal medicine conditions (76 cases), rheumatologic conditions (59 cases) and thoracic and abdomen surgery problems (58 cases) were the three most frequent primary diagnoses, followed by transplantation patients, endocrinological conditions and dermatologic conditions.

Table 1. Primary and psychiatric diagnoses in psychiatric consultations services and mean number of days from admission.

DSMIV-TR type of diagnostic category	N	%	Mean number of days from admission
Single-diagnosis consultations			
Mood disorders	219	43.5	11/3
Major depressive disorder	120	23.8	
Bipolar mood disorder	29	5.8	
Mood disorder due to general medical condition	4	0.8	
Mixed anxiety and depressive disorder	66	13.1	
Adjustment disorder	55	9.10	17/2
Cognitive disorders	38	7.6	15/8
Delirium	35	7	
Dementia	3	0.6	
Anxiety disorders	34	8.6	13
Somatoform disorders	24	8.4	15/21
Psychotic disorders	21	2.4	11/52
Substance use disorders	8	6.1	14/13
Other psychiatric disorders	54	7.10	
Single diagnosis and multiple diagnosis in consultations			
Mood disorder	236	46.9	
Anxiety disorder	46	9.1	
Substance use disorder	12	2.4	
Primary diagnoses			
Internal medicine conditions	76	15	13/92
Rheumatologic conditions	59	12	9/80
Thoracic and abdominal surgical conditions	58	11	11/81
Transplantation	51	10	17/37
Endocrinological conditions	40	7	10/20
Dermatologic conditions	33	6	9/21
Infectious disease	29	5.7	17/41
Neurological illnesses	27	5.3	9/93
Orthopedic conditions	23	4.5	7/74
Gastrointestinal diseases	21	4	10/67
Cardiovascular diseases	17	3.3	12/06
Pulmonary diseases	17	3.3	13/24
Renal/genitourinary condition	12	2.3	12/58

Table 2. Mean log length of stay from admission to consultation and reason for psychiatric consultation and diagnoses.

		Count	Percent	Mean log (± SD)
Type of requests in psychiatric consultations	present psychiatric symptoms	307	61.0	0.97 (0.425)
	past psychiatric symptoms	85	16.9	0.88 (0.392)
	request for psychiatric intervention	56	11.1	0.97 (0.391)
	assessment for psychiatric etiology	32	6.4	0.99 (0.395)
	unknown	23	4.6	0.76 (0.558)
Clarification of requests in psychiatric consultation	clarified	480	95.4	0.96 (0.407)
	unclarified	23	4.6	0.76 (0.558)
Diagnostic category of psychiatric diagnosis	mood disorder	219	43.5	0.90 (0.432)
	adjustment disorder	55	10.9	1.07 (0.432)[*]
	cognitive disorder	38	7.6	1.09 (0.321)[*]
	anxiety disorder	34	6.8	1.03 (0.302)
	psychotic disorder	21	4.2	0.99 (0.287)
	somatoform disorder	24	4.8	1.05 (0.355)
	substance disorder	8	1.6	0.79 (0.728)
	other psychiatric disorder	54	10.7	0.94 (0.423)
	not diagnosis	50	9.9	0.82 (0.414)
psychiatric diagnosis status in consultation	definite diagnosis	435	86.5	0.97 (0.414)
	without diagnosis	68	13.5	0.84 (0.420)[**]

[*] $P<0.05$ in comparison with the undiagnosed category.

[**] $P<0.05$

Table 3. Clarification of request in psychiatric consultation and psychiatric diagnosis status in consultation.

Clarity of request in psychiatric consultations	Psychiatric diagnosis status in consultation	
	Definite diagnosis	Without diagnosis
Clarified	419 (87.3 %)[*]	61 (12.7%)
unclarified	16 (69.6%)	7 (30.4%)

[*] $P=0.025$ (based on Fisher exact test)

Evidences for requisition consultation and diagnostic categories based on DSM-IV-T summarized in Table 3. The results show that mental symptoms and need for psychiatric intervention are the two most prevalent reasons for consultation. The upper part of Table 3 shows in descending order of the frequency, the primary reason for psychiatric consultations of the patients while the lower part of the table shows categories of psychiatric diagnosis and their mean (±SD) of the log length of stay from admission in the hospital. Present psychiatric problems like depression, anxiety, aggression (307 cases), request for psychiatric interventions (56 cases) and past psychiatric history (58 cases) were the three most frequent primary reasons of consultation. As for the diagnostic categories, mood and adjustment disorder were the most frequent ones. The result showed a trend towards statistically significant difference in mean log length of stay among primary reasons for psychiatric consultation ($P=0.07$, df=9,

F=0.89). In addition mean log length of stay did differ among different diagnosis categories ($P=0.009$, df=15, F=5.47) and based on Dunnette multiple comparison the difference existed between those who were not diagnosed and with both who were diagnosed with cognitive and adjustment disorder.

In 23 cases the request for psychiatric consultation was not clear. There has been a significant association between request of psychiatric consultation and psychiatric diagnosis status (Table 3), specifically those with clarified request received definite diagnosis (87.3%, $P=0.025$).

Discussion

In our study the rate of psychiatric consultation was found to be 1.19% among all admissions for calendar year 2007, which is the second lowest consultation rate among similar studies, only the rate reported by Wallen

et al. in 1987 is lower than the current study. Malhotra and Malhotra studied the psychiatric consultations in a university hospital in 1984 in India as a developing country and reported the consultation rate as 1.5 percent which is higher than our study. The rate of consultation obtained in this study is lower than the one declared by Maroufi *et al.* (24), a study in Iran which reported this rate as 3% in a general hospital. The unusually low rate in this study can be explained by some local factors. Our study took place in a complex of hospitals where there are some difficulties in access to the consultation-liaison services; moreover the two hospitals we studied had no psychiatric ward to serve consultation facilities during the entire day, the latter specially lowers the rate of consultation request compared to two other studies.

In our study, the overall rate of consultations in which at least one psychiatric diagnosis was made was 90%; this rate is consistent with the results of prior studies. However in Malhotra study the rate of psychiatric diagnoses was 70% with ICD-9 diagnostic system which is lower than our study with DSM IV-TR system. This study like the other studies which used the DSM diagnostic system, reports higher rate of psychiatric disorder (>90%) compared to those used ICD diagnostic system (<90%) (2).

In our study, more than one psychiatric diagnosis was given in about 10.9% of consultations. In the study by McKegney *et al.* (25), 20% of referral patients had more than one axis I diagnosis. Other studies addressing multiplicity of psychiatric diagnoses have described this phenomenon in terms of the number of psychiatric diagnoses (axis I and axis II) per referral patient. This rate is reported to range from a low value of 1.1 diagnoses per patient to a maximum value of 1.8 (1,4,8, 13,25,26). The number of diagnoses per referral patient in our study was 1.01, less than the range reported by prior studies. The observation of multiple psychiatric diagnoses leads to consideration of as yet little-defined phenomenon: multiple psychiatric co-morbidity that complicates the management of medical/surgical illness. In studies that considered only single or major psychiatric diagnoses, the detail offered by consideration of multiple diagnoses is not provided

The mood disorders category was the most common group psychiatric diagnoses encountered. Comparing our results to those of previous studies in which multiple psychiatric diagnoses were examined, the rate of mood disorder diagnoses was between 10% to 78% (4,14) indicating a moderate rate which is similar to eastern countries like China (34).

We found a rate of cognitive disorder diagnoses of 7.6%; the rate for delirium diagnoses was 7%, and the rate for dementia diagnoses was 0.6%. In comparisons with previous studies examining multiple psychiatric diagnoses, the rate of cognitive disorders diagnoses in our study was higher than the rate of only one previous study (15). Other studies reported higher rate of cognitive or organic disorders (2).

Before publication of DSM-IV, the prior category of "organic mental disorders" included substance-induced syndromes and "organic" syndromes currently classified by their symptoms (e.g., mood and anxiety disorders due to a general medical condition) (27-30). Consequently, patients who meet the criteria for a DSM-IV or DSM-IV-TR diagnosis of cognitive disorder are a more exclusively defined group than were the patients who formerly received a DSM-III or DSM-III-R diagnosis of organic mental disorder (27-30). In the light of the fact that the current category of cognitive disorders is more restrictive than the formerly used organic mental disorders category, one would expect a lower rate of cognitive disorder diagnoses, compared to the broader, "organic" category, if the cognitive disorders were not more frequently encountered. The rate of cognitive disorder, delirium and dementia, was lower than other studies, which can be explained by outpatient and half daily service of liaison unit in this study plus not offering emergency consultation services for delirious patients. It seems that in these two hospitals, patients with cognitive problems like delirium and dementia are usually treated by their physician and they didn't request consultation for delirium treatment.

The rate of substance use disorder diagnoses in our study was 1.6%. Compared to the rates reported in previous studies that considered multiple diagnoses, this rate was higher than only the rate in one study (13). Despite the prevalence of 2.8% opiate use in Iran (31), it is possible that local socio-cultural factors justify the relatively low rate substance use diagnoses found in the current study. Due to high prevalence of opiate use in the population, especially in inpatients, physicians may not do any intervention for either treatment or referring to psychiatric services. If they confront a patient with any drug-related-problem, they may refer them to receive professional psychiatric care.

The rate of adjustment disorder in our study was 10.9%. Comparing to the rates reported in other studies that are in range 3.3% to 33% this rate is in the middle state (2) and shows that our patients have problems in adjustment with their medical problems. Regarding to adjustment disorder as an important diagnostic construct

in the medical setting which encompasses up to ten percent of patients, it embraces serious mental symptoms and behavior, e.g., suicidality, and noncompliance; it is a risk factor for other psychiatric disorders; and patients assigned this diagnosis require as much clinical care and supervision time as the other major mental disorders did (32).

In this study about 5 percent of requests for psychiatric consultation were not clear and our findings displayed unknown or ambiguous reasons for psychiatric consultation which correlates with increasing the rate of no diagnosis in psychiatric assessment. In these cases the reason for psychiatric consultation was not clear and they usually stated that: "Please visit this patient for psychiatric aspects" without any explanation about patients'' symptoms, history or problems. Pervious studies explained no repots of this phenomenon (2), and with the effect of unknown request on psychiatric diagnosis it needs more attention in future studies. Nevertheless, recent findings suggest the new approach to the identification of patients for psychiatric assistance and precise and clear referral might be worth considering (33)

Analysis of mean log length of stay among different diagnosis categories showed cognitive and adjustment disorders had more duration of admission before consultation which could be as a result of initial treatment or inability to detect their symptoms by the physician other than the psychiatrist. Both cognitive and adjustment disorders are risk factors for other behavioral problems, especially non-adherence in treatments (32); so patients need more precise and earlier identifications to detect these diagnoses. However, effective clinical care requires more collaboration between the liaison psychiatrists and other medical disciplines to increase the ability of immediate diagnosis for psychiatric consultation (33). One limitation of our study was the reliance on the diagnoses provided by the faculty consultation-liaison service psychiatrist who visited (observed) the patient, rather than on diagnoses derived from a research diagnostic method, such as the use of standardized structured interviews and/or formal rating scales. Regarding this issue, we were unable to assess the reliability of the diagnoses. In addition, our data source did not directly address severity of impairment resulting from psychiatric illness or the simultaneous medical/surgical illnesses. Imam Khomeini and Shariati hospitals are university medical centers with a well-staffed consultation-liaison service, and these results may not apply to institutions where consultation-liaison services are less readily available.

In conclusion, we found that mood disorders, adjustment disorder and cognitive disorders continue to be the major diagnosis groups encountered in our consultation-liaison services. Strict statistical comparisons with the findings of prior studies are limited by numerous methodological differences between studies and the diagnostic inconsistency, resulting from the use of different diagnostic systems. Several prior studies did not cite a specific diagnostic system, some classified cases in somewhat different ways, and some included diagnostic categories related to other than DSM diagnostic classification. In addition, some of the comparison studies were conducted in other countries where diagnostic practices may be different. Despite these limitations, we found that mood, adjustment and cognitive disorders remain the core of consultation-liaison practice.

Since the publication of the majority of these studies, there have been significant changes in both the nosology of psychiatric disorders and in financial models for health care systems. DSM-IV and DSM-IV-TR abandoned the DSM-III and DSM-III-R category of "organic mental disorders" and replaced it with a more restrictive category of "delirium, dementia, and amnestic and other cognitive disorders (27-30). The term "neurosis" has been eliminated in favor of more explicitly defined mood, anxiety, adjustment, and personality disorders (29,30).

Acknowledgment

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