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Retrospective Analysis of Cases Consulted at the Department of Psychiatry in a General Hospital in Guangzhou, China

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Abstract

Objective: To comprehensively analyze cases of psychiatric consultation in a general hospital and provide a primary reference for the development of consultation-liaison psychiatry.

Method: A retrospective study was conducted by analyzing data collected over a two-year period regarding psychiatric consultations from the inpatient registry in a general hospital.

Results: A total of 926 and 774 psychiatric consultations were recorded in 2016 and 2017, respectively. The most common reason for consultation was unexplained somatic symptoms. Consultations based on psychological evaluation, and mental/behavioral disorders due to organic diseases and perioperative stress were significantly higher in 2017 than those in 2016 ($P<0.01$). Diagnoses of neurotic, stress-related and somatoform disorders were significantly lower in 2017 compared to those in 2016 (269 (34.8%) cases in 2017 *vs*. 373 (40.3%) cases in 2016; $P=0.019$). Among specific diagnoses, generalized anxiety disorder was the most common.

Conclusion: Most patients with depressive or anxiety disorders visit a general hospital due to somatic symptoms. It is necessary to train non-psychiatrists to identify mental disorders efficiently, as well as to extend the comprehensive consultation model to include more clinical departments.

Keywords: Consultation-liaison psychiatry; General Hospital; Mental disorder; Anxiety

Introduction

Mental health problem is a serious issue among medically ill patients in general hospitals. Patients with mental disorder comorbidities show increased morbidity and mortality. If these comorbidities are not recognized and treated, they not only lead to an increased risk of multiple hospital visits and prolonged hospital stay, but also to higher medical expenses and ineffective treatment [1-3]. Due to the importance placed on mental health in China, the National Mental Health Work Plan (2015-2020) specifies that tertiary referral hospitals must include a psychiatric department. Huang et al. conducted a questionnaire-based cross-sectional epidemiological study on the prevalence of mental disorders in China between 2013 and 2015, and reported that anxiety disorders were the most common class of disorders among subjects both in the twelve months preceding the interviews, and in their lifetime [4]. Approximately 50% of the patients with a major depressive disorder or anxiety disorder prefer to visit a general hospital for the first consultation. Furthermore, more than 80% of those patients complaint only about somatic symptoms [5]. Patients with chronic psychical illness, or those in the perioperative period, have increased risks of comorbidities such as anxiety or depression [6-8].

Psychiatric consultation-liaison services play an important role in the diagnosis and treatment of mental comorbidities and psychological burdens in patients [9]. However, this model cannot be implemented for all patients with mental health concerns because of the high prevalence of mental comorbidities. Moreover, the inability to identify cases of mental disorders, or misdiagnose them, in non-psychiatry departments is common, and eventually results in treatment delay and waste of medical resources [10]. Simon et al. reported that the healthcare service costs of patients with diabetes and depression were twice as much as those of patients with only diabetes [11]. Currently, there are few reports regarding intra-hospital consultation of cases to psychiatry departments in general hospitals in China, and data regarding the working conditions in these departments are also insufficient. We examined all cases of consultations to psychiatrists in a tertiary referral hospital between 2016 and 2017, with the aim of classifying those using different criteria and providing a primary reference for the development of Consultation-Liaison Psychiatry (CLP) in China.

Subjects and Methods

Ethics

The study protocol was approved by the ethics committee of Guangzhou First People's Hospital. All patients provided written informed consent for their participation.

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Table 1: Demographic data of psychiatric consultation cases between 2016 and 2017.

Variable	Psychiatric consultation cases		Analysis	
	2016 (*n*=926)	2017 (*n*=774)		
	Mean ± SD		t-score	*P*
Age (years)	62.72 ± 18.21	61.16 ± v18.27	1.715	0.08
	n (%)		χ^2-statistic	*P*
Sex				
Male	355 (38.3%)	294 (38.0%)	0.022	0.882
Female	571 (61.7%)	480 (62.0%)		
History of Mental Disorders	365 (39.4%)	198 (25.6%)	36.435	0
Consultation type				
Urgent Consultation	30 (3.2%)	22 (2.8%)	0.225	0.636
General Consultation	896 (96.8%)	752 (97.2%)		

Study design and participation

Intra-hospital consultation was defined as a clinical department or medico-technical department (henceforth referred to as "principal department") consulting a psychiatrist or the psychiatry department within the same hospital (henceforth referred to as "consultant psychiatrist") to provide guidance regarding diagnosis and treatment of psychiatric disorders within the scope of their practice. Consultations that were accepted within 24 hours were considered in the study. Cases where the consultant psychiatrist arrived by the bed of the patient within 10 minutes of referral were classified as urgent consultations. Special cases were those that were referred directly to the chief of the psychiatry department for guidance.

We carried out this retrospective study by extracting information from the inpatient registry. New cases referred to the department of psychiatry in our hospital between 1 January 2016 and 31 December 2017 were included in the study. All consultation cases were registered in the patient record system. Repeated consultations for the same patient were not included in the study. Thus, we counted the total number of new consultation cases instead of the total number of visits to the department of psychiatry.

Statistical analysis

All statistical analyses were conducted using IBM SPSS software, version 22.0 (IBM Corp., Armonk, N.Y., USA). Two-tailed statistical tests were conducted, with a P value <0.05 considered as statistically significant. Continuous variables were described using summary statistics such as Mean ± Standard Deviation (SD), and their normality was assessed by the Shapiro-Wilk normality test. Categorical variables were described using frequencies and percentages. Data were compared using the *t*-test or $\chi 2$ test as appropriate.

Results

General information

Between 1 January 2016 and 31 December 2017, 1700 new cases of intra-hospital psychiatric consultations were registered. The total number of inpatients, excluding repeated hospitalizations, over the same period were 53627 and 55249 in 2016 and 2017, respectively. Out of those inpatients, 926 (1.7%) patients in 2016, and 774 (1.4%) patients in 2017 were referred for psychiatric consultation.

In 2016, 355 out of the 926 patients (38.3%) referred for psychiatric consultation were male and 571 (61.7%) patients were female. The age range was 8-97 years with a mean of 62.72±18.21 years. Further, 30 (3.2%) cases were urgent consultations and 896 (96.8%) were general consultations; A history of mental disorders was found in 365 (39.4%) cases.

In 2017, 294 out 774 patients (38.0%) were male and 480 patients (62.0%) were female. The age range was 8–95 years with a mean of 61.16±18.27 years. There were 22 (2.8%) urgent consultations and 752 (97.2%) general consultations. A history of mental disorders was found in 198 (25.6%) cases, which was significantly lower than that seen in 2016 (P<0.001) (Table 1). No significant differences were observed between the two groups for other variables (P>0.05) (Table 1).

Distribution of "principal department"

A total of 31 clinical departments had referred cases to the department of psychiatry for a consultation. Among these, the three "principal departments" which made the maximum number of referrals were the department of neurology (291 (31.4%) in 2016, 187 (24.2%) in 2017), the department of geriatrics (92 (9.9%) in 2016, 92 (11.9%) in 2017), and the department of gastroenterology (57 (6.2%) in 2016, 83 (10.7%) in 2017) (Table 2).

Reasons for consultation

The most common reasons for consultation in both 2016 (926 cases) and 2017 (774 cases) were - unexplained somatic symptoms (admitted due to physical discomfort without any evidence of organic disease upon medical examination) (519 (56.0%) in 2016, 372 (48.1%) in 2017), history of mental disorders in patients who were admitted due to physical diseases (325 (35.1%) in 2016, 188 (24.3%) in 2017), and mental/behavioral disorders due to organic diseases (38 (4.4%) in 2016, 98 (12.7%) in 2017) (Table 3). Other reasons included psychological evaluation, and mental/behavioral disorders due to overuse of psychotropic drugs, perioperative stress, and acute stress events. Consultations due to psychological evaluation, and mental/behavioral disorders due to organic diseases, and perioperative stress showed a significant increase in 2017 than those in 2016 (P<0.01). In contrast, consultations due to unexplained somatic symptoms, history of mental disorders in patients who were admitted due to

Table 2: Distribution of cases by "principal department" (n (%)).

Principal Department	2016	2017	Principal Department	2016	2017
Department of Internal Medicine	***n*=427**	***n*=395**	**Department of Surgery**	***n*=86**	***n*=112**
Respiratory Medicine	45 (4.9%)	30 (3.9%)	Traumatic surgery	14 (1.5%)	17 (2.2%)
Rehabilitation	52 (5.6%)	32 (4.1%)	Hepatobiliary surgery	8 (0.9%)	19 (2.5%)
Endocrinology	40 (4.3%)	33 (4.3%)	Joint surgery	11 (1.2%)	11 (1.4%)
Nephrology	20 (2.2%)	21 (2.7%)	Spinal surgery	7 (0.8%)	6 (0.8%)
Gastroenterology	57 (6.2%)	83 (10.7%)	Thyroid & Breast surgery	9 (1.0%)	11 (1.4%)
Cardiology	39 (4.2%)	58 (7.5%)	Urology	10 (1.1%)	11 (1.4%)
Hematology	37 (4.0%)	17 (2.2%)	Gastroenterological surgery	20 (2.2%)	14 (1.8%)
Oncology	3 (0.3%)	3 (0.4%)	Cardiothoracic surgery	4 (0.4%)	9 (1.2%)
Geriatrics	92 (9.9%)	92 (11.9%)	Burns surgery	1 (0.1%)	2 (0.3%)
Rheumatology & Immunology	21 (2.3%)	13 (1.7%)	Intervention surgery	1 (0.1%)	0 (0%)
Traditional Chinese Medicine	21 (2.3%)	13 (1.7%)	Otolaryngology	0 (0%)	7 (0.9%)
Department of Neurology	*n*=320	*n*=211	Ophthalmology	1 (0.1%)	3 (0.4%)
Neurosurgery	29 (3.1%)	24 (3.1%)	**Other Departments**	*n*=73	*n*=49
Neurology	291 (31.4%)	187 (24.2%)	Pain Medicine	3 (0.3%)	9 (5.5%)
Women & children's medicine	*n*=20	*n*=9	Critical Care Medicine	12 (1.3%)	10 (1.3%)
Pediatrics	2 (0.2%)	0 (0%)	Emergency Medicine	53 (5.7%)	25 (3.2%)
Gynecology & Obstetrics	18 (1.9%)	9 (1.2%)	Dermatology	5 (0.5%)	5 (0.6%)

Table 3: Reasons for psychiatric consultation (n (%)).

Reasons for consultation	2016	2017	χ^2-statistic	*P*
Psychological evaluation	5 (0.5%)	74 (9.6%)	77.424	0.000
Mental/behavioral disorders due to psychotropic drug overuse	13 (1.4%)	2 (0.3%)	6.325	0.012
Patients with history of mental disease admitted due to physical disorders	325 (35.1%)	188 (24.3%)	32.373	0.000
Mental/behavioral disorders due to organic diseases	38 (4.1%)	98 (12.7%)	41.952	0.000
Unexplained somatic symptoms	519 (56.0%)	372 (48.1%)	10.779	0.001
Mental/behavioral disorders due to perioperative stress	22 (2.4%)	39 (5.0%)	8.642	0.003
Mental/behavioral disorders due to acute stress events	4 (0.4%)	1 (0.1%)	1.318	0.251

Table 4: Classification of psychiatric diagnosis (n (%)).

Diagnosis	2016	2017	χ^2-statistic	*P*
Disregard of mental and behavioral disorders	65 (7.0%)	60 (7.8%)	0.332	0.564
Dementia	45 (4.9%)	37 (4.8%)	0.006	0.939
Delirium	9 (1.0%)	6 (0.8%)	0.187	0.666
Mental disorders due to brain damage and dysfunction and to physical disease	159 (17.2%)	99 (12.8%)	6.283	0.012
Schizophrenia, schizotypal, and delusional disorders	20 (2.2%)	19 (2.5%)	0.164	0.686
Mood disorders	207 (22.4%)	172 (22.2%)	0.004	0.948
Neurotic, stress-related and somatoform disorders	373 (40.3%)	269 (34.8%)	5.478	0.019
Behavioral syndromes associated with physiological disturbances and physical factors	23 (2.5%)	25 (3.2%)	0.856	0.355
Disorders of adult personality and behavior	2 (0.2%)	0 (0%)	1.674	0.196
Behavioral and emotional disorders with onset usually occurring in childhood and adolescence	1 (0.1%)	0 (0%)	0.836	0.360
Acatalepsia	11 (1.2%)	84 (10.9%)	74.643	0.000
Mental/behavioral disorders due to the use of psychoactive substances	11 (1.2%)	2 (0.3%)	4.800	0.028
Mental retardation	0 (0%)	1 (0.1%)	1.197	0.274

physical diseases, and mental/behavioral disorders due to overuse of psychotropic drugs showed a significant decrease in 2017 than those in 2016 (P<0.05) (Table 3).

Classification of consultation diagnosis

The top three diagnoses, made according to the criteria outlined in the "ICD-10 Classification of Mental and Behavioural Disorders", by consultant psychiatrists were as follows: 1) Neurotic, stress-related and somatoform disorders (373 out of 926 (40.3%) in 2016, 269 out of 774 (34.8%) in 2017), 2) Mood disorders (207/926 (22.4%) in 2016, 172/774 (22.2%) in 2017), and 3) Mental disorders due to brain damage and dysfunction, and physical disease (159/926 (17.2%) in 2016, 99/774 (12.8%) in 2017) (Table 4). Furthermore, among neurotic, stress-related and somatoform disorders, the distribution of specific disease diagnoses were as follows: generalized anxiety disorder (342 out of 373 (91.7%) in 2016, 243 out of 269 (90.3%) in 2017), somatoform disorder (14/373 (3.8%) in 2016, 20/269 (7.4%) in 2017), dissociative (conversion) disorder (10/373 (2.7%) in 2016, 5/269 (1.9%) in 2017), and adjustment disorder (7/373 (1.8%) in 2016, 1/269 (0.4%) in 2017). Among cases diagnosed as mood disorders, 204 out of 207 (98.5%) and 170 out of 172 (98.3%) consultations were made for depressive episodes in 2016 and 2017, respectively, and the rest were for bipolar disorder.

Notably, cases that were diagnosed as mental disorders due to brain damage and dysfunction, and to physical disease, as well as those diagnosed as neurotic, stress-related and somatoform disorders showed a significant decrease in 2017 compared with those in 2016 (P<0.05). Similarly, among reasons for consultation, cases of mental/behavioral disorders due to overuse of psychotropic drugs were significantly lower in 2017 than those in 2016 (P=0.028) (Table 4).

Discussion

Substantial developments in the biopsychosocial-medical model have enabled improvements in the identification of mental diseases by non-psychiatrists. In addition, due to recent developments, particularly the increased use of new medical technology and psychiatric medications over the past decade, CLP has become an important part of psychiatry [12].

More than a third of medical and surgical inpatients have psychiatric comorbidities, and up to half of the inpatients have mental health issues [1,13,14]. However, more than half of the cases of psychiatric comorbidities in patients are not recognized by the primary medical teams [15]. Ji et al. analyzed domestic studies conducted in China and found that the rate of psychiatric consultations was between 0.02% and 3.60% [16]. Although the psychiatric consultation rate observed in our study was 1.4-1.7%, it does not reflect the actual prevalence of mental disorders in the general population. He et al. reported that the rate of incidence of depression or anxiety disorders recorded in fifteen tertiary care hospitals from five cities in China was 16.5% [10]. Li et al. found a rate of incidence of 14.27% for depression or anxiety disorders in cardiovascular outpatients from fourteen tertiary care hospitals in China [17]. In terms of the distribution of cases among "principal departments," non-surgical departments had the highest frequency, which was in line with previous reports from China [18,19]. The department of neurology made the highest number of consultations, accounting for close to one third of the cases in the two year-period of our study. This result was consistent with findings of other studies, suggesting that neurological diseases are strongly associated with mental disorders [20-22].

The most common reason for consultation was unexplained somatic symptoms, which accounted for 52.05% of the cases over the two-year period of this study. The second and third most common reasons are a history of mental disorders in patients admitted for physical disorders, and mental/behavioral disorders due to organic diseases, respectively. It was easier for non-psychiatrists to identify mental disorders when the patient met the abovementioned conditions. Furthermore, there was a significant increase in reasons for consultation like psychological evaluation, and mental/behavioral disorders due either to organic diseases or perioperative stress in 2017, compared to those in 2016. In contrast, there was a significant decrease in reasons for consultation like unexplained somatic symptoms, history of mental disorders in patients admitted due to physical disorders, and mental/behavioral disorders due to overuse of psychotropic drugs in 2017 compared with those in 2016. These changes may be due to greater attention being paid to mental health by both non-psychiatrists and patients. There was an increased need for psychological assessment in non-psychiatry departments, while the consultation of cases with a history of mental disorders had decreased significantly. Due to the improved ability of non-psychiatrists to accurately assess depression and anxiety in patients, and the use of psychotropic drugs by non-psychiatrists to treat them, the number of patients requiring psychiatric consultation had decreased. It is also noteworthy that acceptance of mental disorders by patients had improved. An increasing number of patients with unexplained somatic symptoms, or mental or behavioral disorders were willing to take the initiative to visit the outpatient department of psychiatry in the general hospital. The total number of outpatients visiting the psychiatry department in our hospital was 21850 in 2017, an increase of 20.63% over the previous year.

If we consider the diagnosis, there were 585 and 374 cases diagnosed as generalized anxiety disorder or depression in 2016 and 2017, respectively. Together, they accounted for 56.41% of the total number of consultations. These results were consistent with those reported previously, both in China and worldwide, which indicates that somatic symptoms were the primary reason for a hospital visit among most of the patients with depressive disorder or anxiety disorder [10,23,24]. Recently, it has been observed that mild, rather than severe, mental disorder has become the most common type of psychiatric disease diagnosed upon consultation in general hospitals. In addition to the high rate of incidence of depressive or anxiety disorders, and the probability of those being comorbidities with physical disorders, our study also demonstrated that greater attention is being paid to psychological factors. This was not limited only to severe mental disorders, but was also observed for mild mental disorders [10,19,23,25,26].

A previous study reported that although 20-40 % patients had mental disorders, most of them were underdiagnosed [12]. This means that without systematic screening by psychiatrists, the mental healthcare needs of many patients could go unmet, or scarce resources could be misallocated. Along with developments in CLP in the past decade, psychiatric consultations in general hospitals have also

increased. Possible reasons for this could be: 1) Increased knowledge and awareness regarding mental illness among non-psychiatrists, which has increased the rate of identification of mental illness; 2) The stressful nature of the job and patient-physician relationship, which encourages physicians practicing strictly within the scope allowed under law to seek professional help for looking after their own mental health; 3) Intense social competition resulting in increased stress that has led to a rise in the rate of incidence of mental disorders. Moreover, due to an aging population, there is an increase in cases of neurological and mental disorders due to cardiovascular and cerebrovascular diseases, senile dementia, and metabolic disorders; 4) Due to the stigma associated with mental disorders, patients often refuse to visit a psychiatrist, but prefer to visit a general physician instead for somatic symptoms or follow-up of previously treated physical disorders. Thus, in order to decrease the rate of underdiagnoses or misdiagnoses of mental disorders, it is important to train clinicians in non-psychiatry departments to identify and treat mental disorders, especially by recognizing the somatic manifestations of mental disorders. Moreover, Multidisciplinary Teams (MDTs) are effective in strengthening cooperation between psychiatric and non-psychiatric departments [27,28]. Hong et al. compared the effects of different modes of liaison psychiatric service and found that a combination of comprehensive assessment, psychiatric consultation and interdisciplinary teamwork was very efficient in reducing the duration of hospital stay and medical expenses [29]. This proactive and comprehensive consultation model is worthy of being promoted in general hospitals in order to improve the diagnostic accuracy of non-psychiatric doctors and encourage patient compliance with recommendations of psychiatric consultation [30,31].

Our study was subject to a few limitations. First, consultation diagnosis was based on a clinical interview by psychiatrists without using a structured clinical interview questionnaire. Second, consultation data retrieved from one of the hospitals had certain geographical limitations. Third, our study did not account for follow-ups and recovery rates, and did not evaluate the risk of patient suicide. Continuation of CLP services will benefit the overall wellbeing of patients [32]. Although a preliminary analysis of all consultations was conducted in the study, we did not focus on a particular disorder. Future studies that focus on the progression of a specific physical disease with depressive or anxiety comorbidities and explore the impact of mental illness on the outcome of the physical disease are required.

Conclusion

We found that there was a considerable need for consultations with the psychiatry department in the general hospital. The primary reason for psychiatric consultations was unexplained somatic symptoms that are clinical manifestations of depressive or anxiety disorders. It is important to encourage psychiatric consultation, and train clinicians from non-psychiatry departments to identify somatic manifestations of mental disorders with greater efficiency, as well as to extend psychiatric services to tertiary healthcare centers and other healthcare services.

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