

The Distribution of Mental Illness Found by DIS (Diagnostic Interview Schedule) among Internal and Orthopedic Patients

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Abstract: In order to understand how psychiatric problems are distributed in general medical departments, we used DIS (Diagnostic Interview Schedule). The subjects are 307 inpatients and outpatients in the Departments in Internal Medicine and Orthopedics of Fukuoka University Hospital, M Hospital and N Hospital. As a result, 53.4% of all the subjects showed some psychiatric problems. These are, in a descending order, tobacco dependence (30.0%), psychosexual dysfunction (14.3%), alcohol abuse/dependence (14.0%), major depressive episode (6.5%), organic brain syndrome (4.9%), obsessive-compulsive disorder (3.9%), dysthymic disorder (2.3%), panic disorder (2.0%) and others. Also, we discussed comparison between internal patients and neurotic patients who visited psychiatrists complaining of physical symptoms, and the incidence of DIS diagnoses in individual physical diseases.

Key Words: *CLPS, DIS, DSM-III, prevalence of mental illnesses in general medical departments*

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INTRODUCTION

As the need of the Consultation-Liaison Psychiatric Service (CLPS) for physically ill patients is expanding year by year, CLPS turns out to be a very important field of clinical psychiatry. Fukuoka University Hospital^{14 24 40} has been providing CLPS since

the foundation of the hospital in 1973, and a special psychiatrist has been designated for CLPS since 1985.

In spite of the willingness of psychiatrists to go into the hospital wards of other departments, the liaison services usually start only after physicians refer to patients. For this reason, research about the liaison services is usually limited to patients who visited the outpatient clinics or liaison service sections of a psychiatric department. Therefore, there has not been enough empirical data on the prevalence of mental illness in patients in general medical services in this country.

Now psychiatric-epidemiologic research has been greatly improved with DIS (the Di-

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agnostic Interview Schedule³⁰), which NIMH in U.S.A. developed. In this paper, we surveyed mental illnesses among internal and orthopedic patients with DIS. Firstly, we tried to find the practical problems related to this kind of survey. Secondly, from the results of this survey, we discussed the comparison between internal patients and neurotic patients who visited psychiatrists complaining of physical symptoms, and the incidence of DIS diagnoses in individual physical diseases. Lastly, we proposed how psychiatrists can carry out efficient and adequate liaison service.

SUBJECTS AND METHODS

a) Subjects

We carried out 3 surveys (Tables 1 and 2) for 3 months starting from April 1986, one and a half months from mid-October 1986, and 2 months from May 1987. Three hundred and seven inpatients and outpatients in total were studied in these 3 surveys. The subjects consisted of 155 inpatients in the department of internal medicine, 37 inpatients in the department of orthopedics of Fukuoka University Hospital, and 2 outpatients and 79 inpatients of the private N Hospital, which cared mainly for patients with chronic illness, and 31 outpatients and

3 inpatients of the national M Hospital, which cared mainly for respiratory disease including asthma. We limited the subjects to those patients whose physical conditions allowed them to have almost one and a half hour interviews. The age ranged widely from 16 to 87, with the mean age of 55.9. One hundred and seventy-two of the subjects were male, and 135 were female.

b) Methods and Problems

DIS (Diagnostic Interview Schedule³⁰) used in this study was originally developed by NIMH in the United States as an epidemiologic research tool for the ECA (Epidemiological Catchment Area^{4 29}) project. This structured interview schedule enables non-psychiatrists who finished training to diagnose mental illnesses based on DSM-III (Diagnostic and Statistical Manual of Mental Disorder, Third Edition^{1 3 7 16 37}), Feighner criteria, and RDC (Research Diagnostic Criteria). The currently available DIS is the third edition, after various improvements were made on the diction of questions or the coding system of diagnostic rules.

The reliability and validity of this diagnostic schedule are well studied. Some of the researches on the general population found high concordance rates between the diagnoses by nonpsychiatrists following the DIS procedure and those by psychiatrists,⁹ while some found low concordance rates on most of the diagnostic categories.^{2 5} However, according to research on psychiatric inpatients, the general concordance rates were as high as 79% to 90% between diagnoses with DIS assisted by computers by nonpsychiatrists who had been trained to use DIS, and clinical diagnoses based on ICD classification by psychiatrists.^{10 38 39} These findings show that DIS is an objective diagnostic tool which enables nonpsychiatrists to make the closest diagnosis to the diagnosis by psychiatrists. DIS is now widely used for various purposes; for psychiatric epidemiologic researches, for studies of the distribution of mental illness among the general population, for research-

Table 1: Subjects

(Yrs. old)	Inter Medical & Orthopedics n: 307	
	Male (%)	Female (%)
16~20	4 (2.3)	5 (3.7)
21~30	14 (8.1)	12 (10.4)
31~40	25 (14.5)	13 (8.8)
41~50	32 (18.6)	11 (8.1)
51~60	44 (25.6)	26 (19.3)
61~70	27 (15.7)	31 (23.0)
71~80	21 (12.3)	26 (19.3)
80~	5 (2.9)	10 (7.4)
Total	172 (56.0)	135 (44.0)

Mean age (yrs. old): 55.9.

Table 2: Distribution according to Sex and Age in Three Hospitals

Fukuoka University Hospital

Age Sex	~20	21~30	31~40	41~50	51~60	61~70	71~80	81~	Total
Male	4 (3.7)	10 (9.4)	18 (16.8)	22 (20.6)	29 (27.1)	17 (15.9)	6 (5.6)	1 (0.9)	107 (55.7)
Female	5 (5.9)	14 (16.5)	10 (11.8)	10 (11.8)	14 (16.5)	20 (23.5)	12 (14.0)	0	85 (44.3)
Total	9 (4.7)	24 (12.5)	28 (14.6)	32 (16.7)	43 (22.3)	37 (19.3)	18 (9.4)	1 (0.5)	192 (100.0)

Mean Age: 50.6 yrs. old

Mean Days of Hospitalization: 39.8 days

N Hospital

Age Sex	~20	21~30	31~40	41~50	51~60	61~70	71~80	81~	Total
Male	0	2 (4.7)	5 (11.6)	6 (14.0)	12 (27.9)	4 (9.3)	11 (25.5)	3 (7.0)	43 (53.0)
Female	0	0	1 (2.6)	0	6 (15.8)	8 (21.1)	13 (34.2)	10 (26.3)	38 (47.0)
Total	0	2 (2.6)	6 (7.4)	6 (7.4)	18 (22.2)	12 (14.8)	24 (29.6)	13 (16.0)	81 (100.0)

Mean Age: 64.1 yrs. old

Mean Days of Hospitalization: 755.1 days

M Hospital

Age Sex	~20	21~30	31~40	41~50	51~60	61~70	71~80	81~	Total
Male	0	2 (9.1)	2 (9.1)	4 (18.2)	3 (13.6)	6 (27.3)	4 (18.2)	1 (4.5)	22 (64.7)
Female	0	0	1 (8.3)	1 (8.3)	6 (50.0)	3 (25.0)	1 (8.4)	0	12 (35.3)
Total	0	2 (5.9)	3 (8.8)	5 (14.7)	9 (26.5)	9 (26.5)	5 (14.7)	1 (2.9)	34 (100.0)

Mean Age: 57.4 yrs. old

Age among Hospitals

Hospital Age(yrs. old)	Fukuoka Univ. n: 192	N Hospital n: 81	M Hospital n: 34	Total n: 307
~60	136 (70.8)	32 (39.5)	19 (55.9)	187 (60.9)
61~	56 (29.2)	49 (60.5)	15 (44.1)	120 (39.1)

X² test **: p < 0.01

df; 2

ing characteristics of symptoms in an individual patient, or for research of the distribution of individual psychiatric symptoms over different patients.

In this study, our staff psychiatrist of the Department of Psychiatry, Fukuoka University Hospital, carried out this structured interview of DIS. Those interviewers were trained with the DIS training videos to increase the reliability of the diagnoses. We analyzed the interview samples from DIS with computers to get the final diagnoses. The diagnostic categories of DIS contain 20 diagnostic categories found in DSM-III; organic brain syndrome, schizophrenic disorder, major depressive episode, manic episode, panic disorder, agoraphobia, social phobia, simple phobia, obsessive-compulsive disorder, dysthymic disorder, somatization disorder, antisocial personality disorder, psychosexual dysfunction, ego-dystonic homosexuality, transsexualism, alcohol abuse/dependence, tobacco dependence, drug abuse/dependence, anorexia nervosa, and pathological gambling. The subjects who do not satisfy the diagnostic criteria of these 20 disorders fall into "No diagnosis."

This study is one part of the collaborative study between the Department of Transcultural Psychiatry, Neuropsychiatric Institute, UCLA (Professor J. Yamamoto) and our department (Professor M. Nishizono). A department in UCLA supplied DIS manuals and the computer software for diagnosing. The Japanese version of DIS was basically a direct translation of the original English version, except for slight modifications to adapt it to the Japanese cultural background (Nonaka, *et al.* previously presented these modifications^{25 26}).

To collect patients for this study, we had an intake interview with patients and had their informed consents, then a physician in charge of the patients ordered psychiatric consultation to our department. The results of DIS were shown to both the physician and the patients. Most of the internists and orthopedists showed interest in our study and

were cooperative. Nevertheless, some physicians who specialize in the so-called psychosomatic diseases asserted their concern about malicious influences of the survey on the patients. Fortunately, as the surveys went on, those physicians turned more cooperative. Physicians' concern before starting the survey were that items regarding sexual matters might be too explicit for Japanese, that questions about the use of antianxietics and antipsychotics might harm patients with psychosomatic diseases, or that the duration of the interview of DIS was too long. However, after the survey started, these concerns diminished. We speculated that these concerns resulted from the atmosphere of the specific hospital and the physicians being wary about "mind," as well as prudence to psychosomatic diseases.

RESULTS

A total of 53.4% of the subjects was diagnosed as having some of the mental illnesses (Table 3). The major illnesses were, in a descending order, tobacco dependence (30.0%), psychosexual dysfunction (14.3%), alcohol abuse/dependence (14.0%), major depressive episode (6.5%), organic brain syndrome (4.9%), obsessive-compulsive disorder (3.9%), dysthymic disorder (2.3%), panic disorder (2.0%), and others.

Table 4 shows the distribution of mental illnesses in the Department of Internal Medicine and in the Department of Orthopedics of Fukuoka University Hospital. In the Department of Internal Medicine, 72 subjects (46.5%) had no diagnosis, and the remaining 83 (53.5%) had 129 diagnoses in total, meaning an individual patient had 1.6 diagnoses in average. Common diagnoses were tobacco dependence, 61 cases (39.4%), alcohol abuse/dependence, 24 cases (15.5%), psychosexual dysfunction, 19 cases (12.3%), major depressive episode, 8 cases (5.2%), obsessive-compulsive disorder, 5 cases (3.2%), panic disorder, 3 cases (1.3%), organic brain syndromes, 3 cases (1.3%),

Table 3: Comparison of Total Prevalence Rates of DIS Psychiatric Disorder in Three Hospitals

DIS Diagnosis	Hospital Fukuoka Univ. Hosp. n:192(%)	N Hospital n:81(%)	M Hospital n:34(%)	All Subjects n:307(%)
Organic brain syndrome	4(2.1)*	9(11.1)**	2(5.9)	15(4.9)
Schizophrenic disorder		*		
Major depressive episode	10(5.2)	8(9.9)	2(5.9)	20(6.5)
Manic episode		1(1.2)	2(5.9)	3(1.0)
Panic disorder	3(1.6)	2(2.5)	1(2.9)	6(2.0)
Agoraphobia	2(1.0)			2(0.7)
Social phobia				
Simple phobia	2(1.0)	2(2.5)		4(1.3)
Obsessive-compulsive disorder	5(2.6)	7(8.6)		12(3.9)
Dysthymic disorder	2(1.0)	5(6.2)		7(2.3)
Somatization disorder				
Antisocial personality disorder	2(1.0)	1(1.2)		3(1.0)
Psychosexual dysfunction	22(11.5)	18(22.2)	4(11.8)	44(14.3)
Ego-dystonic homosexuality				
Transsexualism				
Alcohol abuse and dependence	26(13.5)	16(19.8)	1(2.9)	43(14.0)
Tobacco dependence	69(35.9)**	18(22.2)	5(14.7)	92(30.0)
Drug abuse and dependence		*		
Anorexia nervosa				
Pathological gambling	2(1.0)	3(3.7)	1(2.9)	6(2.0)
No diagnosis	95(49.5)	26(32.1)**	22(64.7)	143(46.6)
Prevalence of Psychiatric Disorders (%)	50.5**	67.9	35.3**	53.4
Average Number of Diagnoses per Patient	1.5	1.6	1.5	1.6

X²test * :p<0.05

** :p<0.01

df:2

Table 4: DIS Diagnoses of Internal Medical and Orthopedic Inpatients of Fukuoka University Hospital

DIS Diagnosis	Department	Internal Medicine n:155(%)	Orthopedics n:37(%)
Organic brain syndrome		3(1.9)	1(2.7)
Schizophrenic disorder			
Major depressive episode		8(5.2)	2(5.4)
Manic episode			
Panic disorder		3(1.9)	
Agoraphobia		1(0.6)	1(2.7)
Social phobia			
Simple phobia			2(5.4)
Obsessive-compulsive disorder		5(3.2)	
Dysthymic disorder		2(1.3)	
Somatization disorder			
Antisocial personality disorder		1(0.6)	1(2.7)
Psychosexual dysfunction		19(12.3)	3(8.1)
Ego-dystonic homosexuality			
Transsexualism			
Alcohol abuse and dependence		24(15.5)	2(5.4)
Tobacco dependence		61(39.4)	8(21.6)
Drug abuse and dependence		*	
Anorexia nervosa			
Pathological gambling		2(1.3)	
No diagnosis		72(46.5)	23(62.2)
Prevalence of Psychiatric Disorders (%)		53.5	37.9
Average Number of Diagnoses per Patient		1.6	1.4

X² test *: $p < 0.05$

and 2 other diagnoses.

In the Department of Orthopedics of Fukuoka University Hospital, 23 subjects (62.2%) had no diagnosis, and the remaining 14 (37.8%) had 20 diagnoses in total, meaning an individual patient had 1.4 diagnoses in average. Common diagnoses were tobacco dependence, 8 cases (21.6%), psychosexual dysfunction, 3 cases (8.1%), al-

cohol abuse/dependence, 2 cases (5.4%), major depressive episode, 2 cases (5.4%), simple phobia, 2 cases (5.4%), agoraphobia, 1 case, organic brain syndrome, 1 case and antisocial personality disorder, 1 case.

Table 3 shows the distribution of mental illnesses of Fukuoka University Hospital, in the private N Hospital and in the national M Hospital. In the private N Hospital, 26 patients (32.1%) had no diagnosis and 55 patients (67.9%) had 90 diagnoses in total, which means an individual had 1.6 diagnoses on the average. Common diagnoses were psychosexual dysfunction, 18 cases (22.2%), tobacco dependence, 18 cases (22.2%), alcohol abuse/dependence, 16 cases (19.8%), organic brain syndrome, 9 cases (11.1%), major depressive episode, 8 cases (9.9%), obsessive-compulsive disorder, 7 cases (8.6%), dysthymic disorder, 5 cases (6.2%), pathological gambling, 3 cases (3.7%), panic disorder, 2 cases (2.5%), simple phobia, 2 cases (2.5%), and others, 2 cases. In the national M Hospital, 22 patients (64.7%) had no diagnosis and 12 patients had 18 diagnoses in total, meaning an individual had 1.5 diagnoses in average. Common diagnoses were tobacco dependence, 5 cases (14.7%), psychosexual dysfunction, 4 cases (11.8%), organic brain syndrome, 2 cases (5.9%), major depressive episode, 2 cases (5.9%), manic episode, 2 cases (5.9%), and others, 3 cases.

The prevalence of mental illnesses in the N Hospital was the highest among the three hospitals ($p < 0.01$). The prevalence in the N Hospital was significantly higher than that of Fukuoka University Hospital ($p < 0.01$). No significant difference was found between the prevalence of Fukuoka University Hospital and that in the M Hospital. In terms of DIS classification, organic brain syndrome was less common at Fukuoka University Hospital ($p < 0.05$), and was more common in the N Hospital ($p < 0.01$); the incidence of tobacco dependence was higher at Fukuoka University Hospital ($p < 0.01$); the incidence of other diagnoses did not vary

DIS Diagnosis
Organic brain syndrome
Schizophrenic disorder
Major depressive episode
Manic episode
Panic disorder
Agoraphobia
Social phobia
Simple phobia
Obsessive-compulsive disorder
Dysthymic disorder
Somatization disorder
Antisocial personality disorder
Psychosexual dysfunction
Ego-dystonic homosexuality
Transsexualism
Alcohol abuse and dependence
Tobacco dependence
Drug abuse and dependence
Anorexia nervosa
Pathological gambling
No diagnosis
Prevalence of Psychiatric Disorders

significantly

Table 3 shows the distribution of mental illnesses of Fukuoka University Hospital, in the private N Hospital and in the national M Hospital. In the private N Hospital, 26 patients (32.1%) had no diagnosis and 55 patients (67.9%) had 90 diagnoses in total, which means an individual had 1.6 diagnoses on the average. Common diagnoses were psychosexual dysfunction, 18 cases (22.2%), tobacco dependence, 18 cases (22.2%), alcohol abuse/dependence, 16 cases (19.8%), organic brain syndrome, 9 cases (11.1%), major depressive episode, 8 cases (9.9%), obsessive-compulsive disorder, 7 cases (8.6%), dysthymic disorder, 5 cases (6.2%), pathological gambling, 3 cases (3.7%), panic disorder, 2 cases (2.5%), simple phobia, 2 cases (2.5%), and others, 2 cases. In the national M Hospital, 22 patients (64.7%) had no diagnosis and 12 patients had 18 diagnoses in total, meaning an individual had 1.5 diagnoses in average. Common diagnoses were tobacco dependence, 5 cases (14.7%), psychosexual dysfunction, 4 cases (11.8%), organic brain syndrome, 2 cases (5.9%), major depressive episode, 2 cases (5.9%), manic episode, 2 cases (5.9%), and others, 3 cases.

Table 5: Age and DIS Diagnoses

DIS Diagnosis	Age (yrs. old)	~30 n:37(%)	31 ~40 n:37(%)	41 ~50 n:43(%)	51 ~60 n:70(%)	61 ~70 n:58(%)	71 ~80 n:47(%)	over 80 n:15(%)	All Subjects n:307(%)
Organic brain syndrome					3(4.3)	2(3.4)	6(12.8)	4(26.7)	15(4.9)
Schizophrenic disorder						**			
Major depressive episode		3(8.1)	1(2.7)	5(11.6)	4(5.7)	5(8.6)	2(4.3)		20(6.5)
Manic episode		1(2.7)		1(2.3)		1(1.7)			3(1.0)
Panic disorder		1(2.7)		1(2.3)	4(5.7)				6(2.0)
Agoraphobia		1(2.7)	1(2.7)						2(0.7)
Social phobia									
Simple phobia		2(5.4)			1(1.4)	1(1.7)			4(1.3)
Obsessive-compulsive disorder			3(8.1)	1(2.3)	2(2.9)	4(6.9)	1(2.2)	1(6.7)	12(3.9)
Dysthymic disorder				1(2.3)	3(4.3)	1(1.7)	2(4.3)		7(2.3)
Somatization disorder									
Antisocial personality disorder		2(5.4)		1(2.3)					3(1.0)
Psychosexual dysfunction		5(13.5)	6(16.2)	5(11.6)	7(10.0)	5(8.6)	12(25.5)	4(26.7)	44(14.3)
Ego-dystonic homosexuality						**			
Transsexualism									
Alcohol abuse and dependence		2(5.4)	6(16.2)	9(20.9)	14(20.0)	8(13.8)	4(8.5)		43(14.0)
Tobacco dependence		10(27.0)	12(32.4)	17(39.5)	25(31.4)	14(24.1)	14(29.8)		92(30.0)
Drug abuse and dependence									
Anorexia nervosa									
Pathological gambling			1(2.7)	3(7.0)	1(1.4)		1(2.2)		6(2.0)
No diagnosis		18(48.6)	20(54.1)	16(37.2)	30(42.9)	28(48.3)	25(53.2)	6(40.0)	143(46.6)
Prevalence of Psychiatric Disorders (%)		51.4	45.9	62.8	57.1	51.7	46.8	60.0	53.4

X² test **: p < 0.01

significantly among the three hospitals.

Table 2 shows the mean age and the mean duration of admission to the three hospitals. The mean age and the mean duration of admission were 50.6, 39.8 days at Fukuoka University Hospital, and 64.1, 755.1 days in the N Hospital, respectively. The percentage of the patients 61 years of age or older in the N Hospital was significantly higher than any other hospitals ($p < 0.01$). The long stay and aging of the patients in the N Hospital may cause a high prevalence of mental illnesses.

Patients in the Department of Orthopedics of Fukuoka University Hospital who were diagnosed as diseases related with "psychosomatic disease," such as a habitual dislocation of shoulder joints or thoracic outlet syndrome, are sometimes referred to our psychiatric department. We investigated 37 orthopedic inpatients and compared their DIS diagnoses with those of the internal patients. Table 4 shows that the incidence of "no diagnosis" in the orthopedic patients is higher than that in the internal patients, though the difference does not reach a statis-

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Table 6: Age and DIS Diagnoses

Age	~50 n:117(%)	51~70 n:128(%)	71~ n: 62(%)	All Subjects n:307(%)
DIS Diagnosis				
Organic brain syndrome		5(3.9)	10(16.1)	15(4.9)
Schizophrenic disorder			**	
Major depressive episode	9(7.7)	9(7.0)	2(3.2)	20(6.5)
Manic episode	2(1.7)	1(0.8)		3(1.0)
Panic disorder	2(1.7)	4(3.1)		6(2.0)
Agoraphobia	2(1.7)			2(0.7)
Social phobia				
Simple phobia	2(1.7)	2(1.6)		4(1.3)
Obsessive-compulsive disorder	4(3.4)	6(4.7)	2(3.2)	12(3.9)
Dysthymic disorder	1(0.9)	4(3.1)	2(3.2)	7(2.3)
Somatization disorder				
Antisocial personality disorder	3(2.6)			3(1.0)
Psychosexual dysfunction	16(13.7)	12(9.4)	16(25.8)	44(14.3)
Ego-dystonic homosexuality			**	
Transsexualism				
Alcohol abuse and dependence	17(14.5)	22(17.2)	4(6.4)	43(14.0)
Tobacco dependence	39(33.3)	39(30.5)	14(22.6)	92(30.0)
Drug abuse and dependence				
Anorexia nervosa				
Pathological gambling	4(3.4)	1(0.8)	1(1.6)	6(2.0)
No diagnosis	54(46.2)	58(45.3)	31(50.0)	143(46.6)
Prevalence of Psychiatric Disorders (%)	53.8	54.7	50.0	53.4

X² test ** : p < 0.01

Table 7: DIS Diagnosis with Sexual Distinction

Sex	Male n:172	Female n:135	All Subjects n:307
DIS Diagnosis			
Organic brain syndrome	6 (3.5)	9 (6.7)	15 (4.9)
Schizophrenic disorder			
Major depressive episode	11 (6.4)	9 (6.7)	20 (6.5)
Manic episode	3 (1.7)		3 (1.0)
Panic disorder	2 (1.2)	4 (3.0)	6 (2.0)
Agoraphobia		2 (1.5)	2 (0.7)
Social phobia			
Simple phobia	1 (0.6)	3 (2.2)	4 (1.3)
Obsessive-compulsive disorder	3 (1.7)	9 (6.7)	12 (3.9)
Dysthymic disorder	3 (1.7)	4 (3.0)	7 (2.3)
Somatization disorder			
Antisocial personality disorder	3 (1.7)		3 (1.0)
Psychosexual dysfunction	17 (9.9)	27 (20.0)	44 (14.0)
Ego-dystonic homosexuality	*		
Transsexualism	**		
Alcohol abuse and dependence	41 (23.8)	2 (1.5)	43 (14.0)
Tobacco dependence	76 (44.2)	16 (11.9)	92 (30.0)
Drug abuse and dependence	**		
Anorexia nervosa			
Pathological gambling	6 (3.5)	**	6 (2.0)
No diagnosis	67 (39.0)	76 (56.3)	143(46.6)
Prevalence of Psychiatric Disorders (%)	61.0%	43.7%	53.4%

X² test ** :p < 0.05

** :p < 0.01

Fisher ** :p < 0.01

All
subjects
:307(%)

5(4.9)

(6.5)

3(1.0)

6(2.0)

2(0.7)

(1.3)

(3.9)

(2.3)

(1.0)

(14.3)

(14.0)

(30.0)

2.0)

46.6)

.4

<0.01

tical significance. It seems that the orthopedic patients were more defensive toward psychological problems than the internal patients, though we have to take in account the difference in the mean age and the mean duration of admission as well.

Tables 5 and 6 show the age distribution of the DIS/DSM-III diagnoses. The occurrence of mental illness was 51.4% in the patients 30 years of age or younger, 45.9%

in the patients 31-40 years of age, 62.8% in the patients 41-50 years of age, 57.1% in the patients 51-60 years of age, 51.7% in the patients 61-70 years of age, 46.8% in the patients 71-80 years of age, and 60.0% in the patients 81 years of age or older. The prevalence by age shows that the majority of mental illnesses varies between 45.9 to 62.8%, that is more than half the subjects in most of the age groups who were

Table 8: Duration of Hospitalization and DIS Diagnoses

Duration of Hospitalization	Under 2 w.	2 w. ~ 1 m.	1 ~ 3 m.	3 ~ 6 m.	6 m. ~ 1 yr.	1 ~ 3 yr	Over 3 yr.	All Subjects
DIS Diagnosis	n:35(%)	n:67(%)	n:101(%)	n:25(%)	n:17(%)	n:13(%)	n:16(%)	n:274(%)
Organic brain syndrome	1(2.9)	2(3.0)	2(2.0)	2(8.0)	2(11.8)	2(15.4)	2(12.5)	13(4.7)
Schizophrenic disorder								
Major depressive episode	3(8.6)	4(6.0)	5(5.0)	1(4.0)	1(5.9)	1(7.7)	3(18.8)	18(6.6)
Manic episode							1(6.3)	1(0.4)
Panic disorder	1(2.9)	1(1.5)	2(2.0)	1(4.0)				5(1.8)
Agoraphobia			1(1.0)	1(4.0)				2(0.7)
Social phobia								
Simple phobia			2(2.0)			**	2(12.5)	4(1.5)
Obsessive-compulsive disorder	2(5.7)	2(3.0)	2(2.0)	2(8.0)		1(7.7)	3(18.8)	12(4.4)
Dysthymic disorder	1(2.9)	1(1.5)	1(1.0)	1(4.0)	1(5.9)	*	2(12.5)	7(2.6)
Somatization disorder								
Antisocial personality disorder			3(3.0)					3(1.1)
Psychosexual dysfunction	7(20.0)	5(7.5)	11(10.9)	7(28.0)	1(5.9)	5(38.5)	4(25.0)	40(14.6)
Ego-dystonic homosexuality								
Transsexualism								
Alcohol abuse and dependence	4(11.4)	11(16.4)	11(10.9)	5(20.0)	4(23.5)	4(30.8)	2(12.5)	41(15.0)
Tobacco dependence	14(40.0)	29(43.3)	26(25.7)	4(16.0)	4(23.5)	7(53.8)	2(12.5)	86(31.4)
Drug abuse and dependence								
Anorexia nervosa								
Pathological gambling		2(3.0)	1(1.0)			1(7.7)	1(6.3)	5(1.8)
No diagnosis	18(51.4)	27(40.3)	52(51.5)	10(40.0)	7(41.2)	2(15.8)	6(37.5)	122(44.5)
Prevalence of Psychiatric Disorders (%)	48.6	59.7	48.5	60.0	58.8	84.6	62.5	55.5

X² test *:P<0.05

** :P<0.01

Fisher **:P<0.05

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diagnosed as having some mental illnesses. When the subjects were divided into 3 age groups—50 years of age or younger, 51–70 years of age, and 71 years of age or older—organic brain syndrome and psychosexual dysfunction became the most frequent ($p < 0.01$) in the oldest age group, 71 years of age or older. This finding is not surprising, as the deterioration of physical conditions due to aging usually affects the mental function.

Table 7 shows the gender distribution of mental illnesses. Men were more often affected than women ($p < 0.01$). Alcohol abuse/dependence ($p < 0.01$) and tobacco dependence ($p < 0.01$) were significantly more frequent in males, and psychosexual dysfunction ($p < 0.05$) was more frequent in females.

Table 8 shows the prevalence of mental illnesses by the duration of admission. The prevalences were; the duration of 2 weeks or

Table 9: Duration of Illness and DIS Diagnoses

Duration of Illness	under 1 m n:2(%)	1 ~ 3 m n:39(%)	3 ~ 6 m n:16(%)	6 m ~ 1 yr n:36(%)	1 ~ 3 yr n:59(%)	3 ~ 10 yr n:81(%)	over 10 yr n:41(%)	All Subjects n:274(%)
DIS Diagnosis								
Organic brain syndrome		1(2.6)			2(3.4)	6(7.4)	4(9.8)	13(4.7)
Schizophrenic disorder					*			
Major depressive episode					3(5.1)	10(12.3)	5(12.2)	18(6.6)
Manic episode							1(2.4)	1(0.4)
Panic disorder						4(4.9)	1(2.4)	5(1.8)
Agoraphobia				1(2.8)		1(1.2)		2(0.7)
Social phobia								
Simple phobia						3(3.7)	1(2.4)	4(1.5)
Obsessive-compulsive disorder		2(5.1)	1(6.3)	1(2.8)	1(1.7)	2(2.5)	5(12.2)	12(4.4)
Dysthymic disorder					1(1.7)	2(2.5)**	4(9.8)	7(2.6)
Somatization disorder								
Antisocial personality disorder				1(2.8)	1(1.7)		1(2.4)	3(1.1)
Psychosexual dysfunction		2(5.1)	3(18.8)	4(11.1)	13(22.0)	15(18.5)	3(7.3)	40(14.6)
Ego-dystonic homosexuality								
Transsexualism					**	*		
Alcohol abuse and dependence		2(5.1)	1(6.3)	3(8.3)	14(23.7)	13(16.0)	8(19.5)	41(15.0)
Tobacco dependence		12(30.8)	6(37.5)	8(22.2)	18(30.5)	29(35.8)	13(31.7)	86(31.4)
Drug abuse and dependence								
Anorexia nervosa				**				
Pathological gambling					1(1.7)	2(2.5)	2(4.9)	5(1.8)
No diagnosis	2(100.0)	20(51.3)	9(56.3)	22(61.6)	28(47.5)	29(35.8)	12(29.3)	122(44.5)
Prevalence of Psychiatric Disorders (%)	0	48.7	43.7	38.9	52.5	64.2 *	70.7	55.5

X² test *: $p < 0.05$
Fisher **: $p < 0.01$
 ***: $p < 0.05$

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 ***: $p < 0.05$

Table 10: DIS Diagnoses of Neurotic and Internal Medical Patients

DIS Diagnosis	Hysteria n=25(%) male: 5 female:20	Hypochond- riacal Neurosis n=18(%) male: 7 female:11	All Neurotics n=43(%) male: 12 female:31	All Internal Medical & Orthopedics n=307(%) male: 172 female:135
Organic brain syndrome				15 (4.9)
Schizophrenic disorder				
Major depressive episode	10 (40%)	6 (33.3)	16 (37.2)	20 (6.5)
Manic disorder	1 (4.0)		1 (2.3)	** 3 (1.0)
Panic disorder	6 (24.0)	1 (5.6)	7 (16.3)	6 (2.0)
Agoraphobia	8 (32.0)		8 (18.6)	** 2 (0.7)
Social phobia	5 (20.0)		5 (11.6)	**
Simple phobia	1 (4.0)		1 (2.3)	4 (1.3)
Obsessive-compulsive disorder		2 (11.1)	2 (4.7)	12 (3.9)
Dysthymic disorder				7 (2.3)
Somatization disorder	6 (24.0)		6 (14.0)	
Antisocial personality disorder	1 (4.0)		1 (2.3)	3 (1.0)
Psychosexual dysfunction	8 (32.0)	1 (5.6)	9 (20.9)	44 (14.3)
Ego-dystonic homosexuality				
Transsexualism				
Alcohol abuse and dependence	2 (8.0)	2 (11.1)	4 (9.3)	43 (14.0)
Tobacco dependence	6 (24.0)	2 (11.1)	8 (18.6)	92 (30.0)
Drug abuse and dependence		1 (5.6)	1 (2.3)	
Anorexia nervosa				
Pathological gambling	1 (4.0)		1 (2.3)	6 (2.0)
No diagnosis	4 (16.0)	7 (38.9)	11 (25.6)	143 (46.6)
Total (without No diagnosis)	55	15	70 **	257
Average Number of Diagnoses per Patient	2.6	1.4	2.2	1.6
Prevalence of Psychiatric Disorders (%)			74.4	53.4
Mean Age (yrs. old)			35.4	55.9

X² test ** : p < 0.01
Fisher ** : p < 0.01

Yukiyasu Nonaka: Neurotics from the viewpoint of D.I.S., 1987

shorter 48.6%, 2 weeks to 1 month 59.7%, 1 to 3 months 48.5%, 3 to 6 months 60.0%, 6 months to 1 year 58.8%, 1 to 3 years 84.6% and 3 years or longer 62.5%. The longer the duration of admission is, the higher the prevalence of mental illnesses is. In particular, the incidences of both major depressive episode and obsessive-compulsive disorder in the patients who had stayed for 3 years or longer were 18.8% ($p < 0.01$), which suggests that these illnesses are relevant to chronicity of their physical illnesses.

Table 9 shows the prevalence of mental illnesses by the duration of physical illnesses. The longer the patients suffer, the higher the prevalence is. The prevalence was signifi-

cantly high in those patients suffering for 1 year or longer ($p < 0.01$), (for 10 years or longer, $p < 0.05$), and the incidence of obsessive-compulsive disorder of the patients 10 years or older was significantly higher ($p < 0.01$). A major depressive episode was noted in the patients suffering for 1 year or longer.

Table 10 compares the patients in internal medicine and orthopedics and the neurotic patients who visited a psychiatric clinic complaining mainly of physical symptoms. Those neurotics were rated by Nonaka and consisted of 25 patients of hysterical neurosis and 18 of hypochondriasis. One neurotic had 2.2 DIS diagnoses in average, and a

Table 11: Physical Disease and DIS Diagnoses
(Inpatients of internal medicine)

Physical Disease	Diabetes	Digestive Disease	Liverish Disease	Respiratory Disease	Circulatory Disease	Renal Disease	Hematic Disease	Metabolic/Endocrinal Disease	Neural Disease	All Subjects
DIS Diagnosis	n:35(X)	n:12(X)	n:29(X)	n:9(X)	n:30(X)	n:10(X)	n:7(X)	n:7(X)	n:15(X)	n:154(X)
Organic brain syndrome	1(2.9)				1(3.3)				1(6.7)	3(1.9)
Schizophrenic disorder										
Major depressive episode	2(5.7)			2(22.2)	3(10.0)			1(14.3)		8(5.2)
Manic episode										
Panic disorder					2(6.7)					2(1.3)
Agoraphobia							1(14.3)			1(0.6)
Social phobia										
Simple phobia										
Obsessive-compulsive disorder	1(2.9)		1(3.4)		1(3.3)		1(14.3)		1(6.7)	5(3.2)
Dysthymic disorder	1(2.9)				1(3.3)					2(1.3)
Somatization disorder										
Antisocial personality disorder					1(3.3)					1(0.6)
Psychosexual dysfunction		2(16.7)	4(13.8)	1(11.1)	3(10.0)	3(30.0)		1(14.3)	3(20.0)	19(12.3)
Ego-dystonic homosexuality										
Transsexualism										
Alcohol abuse and dependence	7(20.0)	2(16.7)	5(17.2)		3(10.0)	1(10.0)		1(14.3)	5(33.3)	24(15.6)
Tobacco dependence	6(17.1)	4(33.3)	11(37.9)		12(40.0)	3(30.0)	3(42.9)	4(57.1)	7(46.7)	61(39.6)
Drug abuse and dependence										
Anorexia nervosa										
Pathological gambling					1(3.3)	1(10.0)				2(1.3)
No diagnosis	22(62.9)	4(33.3)	12(41.9)	6(66.7)	13(43.3)	5(50.0)	2(28.6)	3(42.9)	5(33.3)	72(46.8)
Prevalence of Psychiatric Disorders (%)	37.1	66.7	58.1	33.3	56.7	50.0	71.4	57.1	66.7	53.2

patient in internal medicine had 1.6 diagnoses in average. A total of 25.6% of neurotics and 46.6% of patients in internal medicine had no diagnosis, and the difference is statistically significant ($p < 0.01$). According to DIS, major depressive episode, panic disorder, and agoraphobia were more prevalent in the neurotics ($p < 0.01$), and other neurotic diagnoses like social phobia and somatization disorder were also more frequently found in neurotics than in patients of internal medicine. The prevalence of mental illnesses of the neurotics is 74.4%, which means that the remaining 25.6% of the neurotics were diagnosed as not having any mental illnesses by DIS, though they were diagnosed clinically as neurotics. This result suggests one of the problems with the application to Japanese patients of DIS originally developed in the U.S.A. A total of 37.2% of the neurotics was diagnosed as having major depressive episode by DIS, suggesting that depressive symptoms might be included in neurotic symptoms.

The characteristics of DIS by diagnoses of physical illnesses (Table 11).

Tobacco dependence and alcohol abuse/dependence were frequently found in the 154 patients at Fukuoka University Hospital, whose duration of admission was relatively short, no matter what physical illnesses they had. Panic disorder was prevalent in the patients with circulatory diseases.

DISCUSSION

We are now forced to decide the future direction of the psychiatric liaison service in Japan. However, the liaison activity in this country still remains in a passive role and is waiting for patients who visited psychiatric clinics voluntarily or through references by physicians. Recently, medical services including psychiatric services have been moving toward public health from medical services in hospital, trying to find out what kinds of illnesses exist in the community and how they can be treated. The liaison services

must observe and be aware of the situation in the community and take a positive attitude. Our study involves an attempt to offer objective basic data for this purpose. DIS and diagnoses supported by computers are not yet common or popular in this country, and the studies by our group were the first to use DIS in this country. Besides the United States,^{18, 31} the same kind of research has been made in Taiwan (Dr. Yeh, *et al.*^{12, 41}) and West Germany,³⁹ and one research group investigated the comparison of the prevalence of mental illnesses in the general population between the U.S.A. and Taiwan. In this country, Dr. Nonaka²⁷ in our department studied the "relationship between DIS diagnosis and clinical diagnosis," "classification by DIS focused on major depressive episode," "clinical significance of DIS." This author previously participated with Dr. Nishizono in his study of patients by DIS diagnosis suffering from diseases or symptoms such as diabetes mellitus, asthma, and hypertension, often called "psychosomatic disease," with the results showing that those patients with psychosomatic diseases revealed less mental symptoms than other internal patients.²³ This research is on the same line, with a special focus on the liaison activity. The prevalence of mental illnesses was 53.4% of the total subjects; 53.5% of the internal medicine patients in Fukuoka University Hospital, 37.8% of the orthopedic patients, 67.9% of the patients in the private N Hospital, and 35.3% of the patients in the national M Hospital. The comparisons of these results by our department and the results of the epidemiological surveys with DIS in foreign countries are shown in Table 12. As the survey in the U.S.A. by NIMH covered only healthy subjects, the comparison holds a limited validity. According to the survey by NIMH,³¹ 18.7% of adults in the U.S.A. had some kinds of mental illnesses.⁴¹ A research by Yeh, *et al.* reported that 26.1% of the subjects in Taiwan had mental illnesses. In comparison with the foreign data, the prevalence of the internal or or-

Table 12: Comparison between DIS Diagnoses of All Subjects and Epidemiologic Survey in Foreign Countries

DIS Diagnosis	All Subjects n:307(%)	U. S. A. n:17000(%)	Taiwan n:8009(%)
Organic brain syndrome	15 (4.9)		
Schizophrenic disorder		0.9	0.3
Major depressive episode	20 (6.5)	2.9	1.4
Manic episode	3 (1.0)	0.7	0.2
Panic disorder	6 (1.5)	0.8	0.2
Agoraphobia	2 (0.7)	5.9	1.3
Social phobia			4.0
Simple phobia	4 (1.3)		0.6
Obsessive-compulsive disorder	12 (3.9)	1.3	0.8
Dysthymic disorder	7 (2.3)	3.1	1.1
Somatization disorder		0.1	
Antisocial personality disorder	3 (1.0)	0.7	0.1
Psychosexual dysfunction	44 (14.3)		1.6
Ego-dystonic homosexuality			
Transsexualism			
Alcohol abuse and dependence	43 (14.0)	4.8	6.7
Tobacco dependence	92 (30.0)		9.5
Drug abuse and dependence		1.8	0.2
Anorexia nervosa			
Pathological gambling	6 (2.0)		
Prevalence of Psychiatric Disorders (%)	53.4 **	18.7	26.1

χ^2 test **: $p < 0.01$
df;2

thopedic patients in Japan was higher than others ($p < 0.01$). It is suggested that the inpatients in Japan have more mental problems than those of other countries. Nevertheless, they do not seem to have a great deal of interest in mental problems.

We turn next to consideration of the meaning of DIS diagnoses in patients with physical illnesses.

1) Major Depressive Episode

The incidence of mood disorders including major depressive episode and dysthymic disorder was 8.8% for the total subjects. Fujii, *et al.* reported that 6.0% of the patients with physical illnesses were diagnosed as cases of depression in their "clinico-epidemiological research on depression in the outpatients' clinics of internal medicine."⁶ The diagnostic criteria for major depressive episode in DSM-III¹ describes depression as; A) dysphoric mood or loss of interest or pleasure in all or almost all usual activities and pastimes, B) at least four of the following symptoms have been present nearly everyday for a period of at least two weeks, (1) poor appetite or significant weight loss or increased appetite or significant weight gain, (2) insomnia or hypersomnia, (3) psychomotor agitation or retardation, (4) loss of interest or pleasure in usual activities, or decrease in sexual drive not limited to a period of delusion or hallucination, (5) loss of energy, fatigue, (6) feelings of worthlessness, self-reproach or excessive or inappropriate guilt, (7) complaints or evidence of diminished ability to think or concentrate, (8) recurrent thoughts of death, suicidal ideation, wishes to be dead, or suicidal attempts. The definition of major depressive episode in DIS is the same as that of DSM-III.

WHO reported that the prevalence of depression in the general population worldwide is 3%,³⁴ and 6% in the U.S.A. Though there are no reports available on the general population in this country, according to our survey, the prevalence is 6.5% of the total subjects (Table 3). The incidence of depres-

sion by the duration of admission (Table 8) varies from 4.0 to 18.8% and reaches the highest level (18.8%) in the subjects whose hospital stay was 3 years or longer, though not statistically significant. The incidence of depression by the duration of the illnesses (Table 9) varies from 5.1 to 12.3%. No depression was found in inpatients whose duration of illness was 1 year or shorter. The reason why the duration of admission or the illnesses correlated with the occurrence of depression might be the socio-psychological effect of the admission or the illnesses on mental status. A long-term admission deprives a patient of social interaction and may make him or her depressive. Irwin suggested the inhibition of the immune system by mood disorder.¹³ He used 3 groups of wives; 1) whose husbands died from lung cancer, 2) whose husbands were suffering from lung cancer at the time of the research and 3) whose husbands were healthy at the time of the research. He asserted that the depressive symptoms assessed by the Hamilton Rating Scale found in the 3 groups correlated with the decrease in the natural killer (NK) cell activity and of the count of the T-cell subpopulation. Some researchers reported a higher incidence of physical illnesses in chronically neurotic patients.^{32 33 36} The concurrent depressive symptoms might worsen the physical symptoms.

2) Obsessive-Compulsive Disorder

Generally speaking, the prevalence of this disorder is around 1% of the general population, and some reports estimated it as 1.3% in the U.S.A. and 0.8% in Taiwan. Nonaka reported the prevalence as 4.7% in the psychiatric outpatients diagnosed as neurosis, and our study revealed that the prevalence in internal and orthopedic patients was as high as 3.9%. The prevalence in the long-term patients of 3 years of stay was 18.8% ($p < 0.01$). A long-term admission bars contact with society to which the patients belonged or causes anxiety in the patients. These socio-psychological effects of a long-

term admission may lead to compulsive-compulsive disorder, recurrent, or impulsive behaviors; certain rules, the obsessive-compulsive source, interfere with the concept of DSM-III neurosis, but a delusion of one's illness. As it turns to be depressive, and prognosis suggested the diseases and obsessive-compulsive.

When physical illness is found in a clinic for understanding the patient of depression, ever, as with the there may be of assumption, consider the anxiety itself to

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ion (Table 8) reaches the subjects whose longer, though the incidence of the illnesses is 12.3%. No patients whose or shorter. of admission th the occur- the socio-psy- mission or the long-term ad- f social inter- ner depressive. of the immune used 3 groups ds died from ds were suffer- ime of the re- s were healthy e asserted that essed by the n the 3 groups in the natural of the count of ne researchers of physical ill- patients.^{32 33 36} mptoms might is.

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term admission might precipitate obsessive-compulsive disorder. DSM-III defines obsessive-compulsive disorder as; A) obsession; recurrent, persistent ideas, thoughts, images or impulses that are ego-dystonic, compulsions; repetitive and seemingly purposeful behaviors that are performed according to certain rules or in a stereotyped fashion, B) the obsessions or compulsions are a significant source of distress to the individual or interfere with social or role functioning. The concept of obsessive-compulsive disorder in DSM-III might include not only obsessive neurosis as a traditional diagnostic category but a defensive attitude like "obsession to one's illness" or "rituals to confirm one's life." As the course of the physical illness turns to be years, the patient becomes obsessive, and this mental symptom worsens the prognosis of the original illness. It is suggested that we cannot treat chronic physical diseases without understanding depression and obsession which usually accompany the chronic course of the illnesses.

When a psychiatrist sees a patient with physical illnesses who visits a psychiatric clinic for help, he or she usually tries to understand and treat the patient, assuming that the patient manifests psychological symptoms of depression or obsessive neurosis. However, as those mental symptoms correlate with the duration of illness or admission, there may be some limitations to this line of assumption. The psychiatrist must consider the psychological symptoms as the anxiety response to the admission or illness itself to success in the liaison activities.

3) Panic Disorder

Two percent of the total subjects were diagnosed as panic disorder. Panic disorder may be mistaken as one of the circulatory diseases by an internist, or for a psychological anxiety response to the circulatory disease caused by a panic attack. Most patients with cardiac neurosis are patients with panic disorder. Some researches reported that 50% of the patients with mitral valve prolapse

syndrome were diagnosed as panic disorder, and 30% to 50% of the patients with panic disorder and the mitral valve prolapse syndrome.³⁰ DSM-III defines panic disorder as; A) at least three panic attacks within a three-week period, B) panic attacks are manifested by discrete periods of appreciation of fear, and at least four of the following symptoms appear during each attack; 1) dyspnea, 2) palpitations, 3) chest pain or discomfort, 4) choking or smothering sensations, 5) dizziness, vertigo, or unsteady feelings, 6) feeling of unreality, 7) paresthesias (tingling in hands or feet), 8) hot and cold flashes, 9) sweating, 10) fainting, 11) trembling or shaking and 12) fear of dying, going crazy, or doing something uncontrolled during an attack. Those descriptions of panic attacks share many similarities with the symptoms of circulatory diseases.

4) Tobacco Dependence, Psychosexual Dysfunction

APA (American Psychiatric Association) considers that tobacco dependence and psychosexual dysfunction are psychiatric problems to be treated. In 1987, the proportion of smokers in the general population was reported to be 61.6% of men and 13.4% of women. As tobacco use predisposes to a variety of disorders of organs such as the respiratory, circulatory and alimentary tracts,^{8 11 15} the incidence of physical disorders in the cause of death to smokers is 1.28 times in men and 1.34 times in women which is high as nonsmokers. Tobacco use is now considered as one of the risk factors to serious physical illnesses. Some investigators propose that enduring the persistent existence of excessive psychological stress impairs the immune system and predisposes to a variety of medical illnesses.¹³ As a smoker often smokes for relief from psychosocial hardships, tobacco dependence might indicate that the individual is experiencing the continuous existence of excessive psychological stress. Psychosexual dysfunction is found more often in women. It seems that

Table 13: DIS Diagnoses for All Subjects

DIS Diagnosis	All Subjects n : 307 (%)	Without T.d. & P.d. n : 307 (%)	Without T.d. n : 307 (%)	Without P.d. n : 307 (%)
Organic brain syndrome	15 (4.9)	15 (4.9)	15 (4.9)	15 (4.9)
Schizophrenic disorder	0	0	0	0
Major depressive episode	20 (6.5)	20 (6.5)	20 (6.5)	20 (6.5)
Manic episode	3 (1.0)	3 (1.0)	3 (1.0)	3 (1.0)
Panic disorder	6 (2.0)	6 (2.0)	6 (2.0)	6 (2.0)
Agoraphobia	2 (0.7)	2 (0.7)	2 (0.7)	2 (0.7)
Social phobia	0	0	0	0
Simple phobia	4 (1.3)	4 (1.3)	4 (1.3)	4 (1.3)
Obsessive-compulsive disorder	12 (3.9)	12 (3.9)	12 (3.9)	12 (3.9)
Dysthymic disorder	7 (1.8)	7 (1.8)	7 (1.8)	7 (1.8)
Somatization disorder	0	0	0	0
Antisocial personality disorder	3 (1.0)	3 (1.0)	3 (1.0)	3 (1.0)
Psychosexual dysfunction	44 (14.3)	(27)	44 (14.3)	(27)
Ego-dystonic homosexuality	0	0	0	0
Transsexualism	0	0	0	0
Alcohol abuse and dependence	43 (14.0)	43 (14.0)	43 (14.0)	43 (14.0)
Tobacco dependence	92 (23.0)	(48)	(48)	92 (23.0)
Drug abuse and dependence	0	0	0	0
Anorexia nervosa	0	0	0	0
Pathological gambling	6 (2.0)	6 (2.0)	6 (2.0)	6 (2.0)
No diagnosis	143 (46.6)	204 (66.4)	186 (60.6)	160 (52.1)
Prevalence of Psychiatric Disorders (%)	53.4	33.6	39.4	47.9

T.d.:Tobacco dependence 44 cases

P.d.:Psychosexual dysfunction 17 cases

sexual problems are serious for a woman with physiological illnesses. Nevertheless, Japanese psychiatrists tend not to consider those two disorders as mental illnesses. Tables 13 and 14 show the prevalences of mental illnesses disregarding tobacco dependence only, psychosexual dysfunction only, and both. The prevalence disregarding both disorders was as high as 41.9% in the total number of

subjects. The prevalence in each hospital was; 35.4% in Fukuoka University Hospital, 62.3% in the N Hospital, 26.7% in the M Hospital. The prevalences of individual mental disorders did not differ from hospital to hospital. Even if those two disorders were excluded, the general pattern of the mental illnesses in the subjects showed little change.

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Preva
Disor

Table 14: DIS Diagnoses among Hospitals (without Tobacco Dependence and Psychosexual Dysfunction)

DIS Diagnosis	Fukuoka Univ. Hosp. n:147(%)	N Hospital n:69(%)	M Hospital n:30(%)	All Subjects n:246(%)
Organic brain syndrome	4(2.7)*	9(13.8)**	2(6.7)	15(6.1)
Schizophrenic disorder	*			
Major depressive episode	10(6.8)	8(11.6)	2(6.7)	20(8.1)
Manic episode		1(1.4)	2(6.7)	3(1.2)
Panic disorder	3(2.0)	2(2.9)	1(3.3)	6(2.4)
Agoraphobia	2(1.4)			2(0.8)
Social phobia				
Simple phobia	2(1.4)	2(2.9)		4(1.6)
Obsessive-compulsive disorder	5(3.4)	7(10.1)		12(4.9)
Dysthymic disorder	2(1.4)	5(7.2)		7(2.8)
Somatization disorder				
Antisocial personality disorder	2(1.4)	1(1.4)		3(1.2)
Psychosexual dysfunction	(12)	(13)	(2)	(27)
Ego-dystonic homosexuality				
Transsexualism				
Alcohol abuse and dependence	26(17.7)	16(23.2)	1(3.3)	43(17.5)
Tobacco dependence	(34)	(11)	(3)	(48)
Drug abuse and dependence				
Anorexia nervosa				
Pathological gambling	2(1.4)	3(4.3)	1(3.3)	6(2.4)
No diagnosis	95(64.6)	26(37.7)**	22(73.3)	143(58.1)
Prevalence of Psychiatric Disorders (%)	35.4**	62.3**	26.7	41.9

X² test * : p < 0.05

** : p < 0.01

df;2

Without P.d.

1:307(%)

15(4.9)

0

20(6.5)

3(1.0)

6(2.0)

2(0.7)

0

4(1.3)

12(3.9)

7(1.8)

0

3(1.0)

27)

0

0

43(14.0)

92(23.0)

0

0

6(2.0)

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CONCLUSION

The future of liaison psychiatry lies in entering the general medical wards, positively grasping the prevalence of psychological problems in physically ill patients, and determining the course of treatment, instead of waiting for the patients to visit psychiatrists' offices. For the purpose of clarifying the mental problems in physical illnesses, we surveyed 307 patients in the Internal Department and the Orthopedic Department of Fukuoka University Hospital, the N Hospital and the M Hospital with DIS (the Diagnostic Interview Schedule) developed by NIMH. The results are as follows;

- 1) 53.4% of the total subjects revealed some of the mental disorders.
- 2) The prevalence of mental illnesses was the highest in the N Hospital, in which the mean age of the patients was the highest (aged people 61 years of age or older were pronounced, $p < 0.01$) and the duration of admission was the longest among the three hospitals ($p < 0.01$).
- 3) The incidence of the "No diagnosis" was higher in orthopedic patients at Fukuoka University Hospital than internal patients at Fukuoka University Hospital (statistically not significant).
- 4) In the subjects 71 years of age or older, organic brain syndrome ($p < 0.01$) was more frequently observed than in the younger subjects.
- 5) In terms of the male-female difference, men suffer more often from alcohol abuse/dependence ($p < 0.01$), tobacco dependence ($p < 0.01$), and mental illnesses in general ($p < 0.01$) than women.
- 6) The longer the admission is, the higher the prevalence of mental illnesses is. In particular, the prevalence of major depressive episode and obsessive-compulsive disorder in the subjects staying in hospitals more than 3 years was as high as 18.8%, respectively ($p < 0.01$).
- 7) The prevalences in the subjects who had been ill for 1 year or longer ($p < 0.01$)

and in the subjects for 10 years or longer ($p < 0.05$) were significantly higher than those in the total number of subjects. The incidence of obsessive-compulsive disorder was significantly high in the subjects who had been ill for 10 years or longer ($p < 0.01$). Major depressive disorders were observed only in those subjects who had been in the hospitals for 1 year or longer.

8) Considering the DIS diagnoses of neurotics by our previous study, the incidence of major mental illnesses in neurotics was higher than that in the subjects surveyed in this study.

In conclusion, medical patients who suffer from chronic illnesses or in long-term admissions have a variety of mental problems to be treated actively by psychiatrists. Furthermore, as mental problems may aggravate and/or prolong physical illnesses, it became clear that the liaison activities to stabilize the mental status of the patients play quite a significant role and serve as a necessity for future physical treatment.

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* * *

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COMMENTS

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