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Prevalence of Depressive Disorder of Outpatients Visiting Two Primary Care Settings

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Objectives: Although the prevalence of depressive disorders in South Korea's general population is known, no reports on the prevalence of depression among patients who visit primary care facilities have been published. This preliminary study was conducted to identify the prevalence of depressive disorder in patients that visit two primary care facilities.

Methods: Among 231 consecutive eligible patients who visited two primary care settings, 184 patients consented to a diagnostic interview for depression by psychiatrists following the Diagnostic and Statistical Manual of Mental Disorders-IV criteria. There were no significant differences in sociodemographic characteristics such as gender, age, or level of education between the groups that consented and declined the diagnostic examination. The prevalence of depressive disorder and the proportion of newly diagnosed patients among depressive disorder patients were calculated.

Results: The prevalence of depressive disorder of patients in the two primary care facilities was 14.1% (95% confidence interval [CI], 9.1 to 19.2), with major depressive disorder 5.4% (95% CI, 2.1 to 8.7), dysthymia 1.1% (95% CI, 0.0 to 2.6), and depressive disorder, not otherwise specified 7.6% (95% CI, 3.7 to 11.5). Among the 26 patients with depressive disorder, 19 patients were newly diagnosed.

Conclusions: As compared to the general population, a higher prevalence of depressive disorders was observed among patients at two primary care facilities. Further study is needed with larger samples to inform the development of a primary care setting-based depression screening, management, and referral system to increase the efficiency of limited health care resources.

Key words: Depression, Primary health care, Patients, Prevalence, Epidemiology

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INTRODUCTION

Suicide is the fourth leading cause of death in South Korea (hereafter Korea), with a rate of 31.2 persons in 100 000 [1]. When converted to the standard population for Organization for Economic Cooperation and Development (OECD) countries, the rate is 28.4 persons in 100 000. This is the highest rate among OECD member countries, and significantly higher than the rate of Hungary, which has the second-highest suicide rate of 19.8 [2].

The World Health Organization (WHO) has determined that

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suicide is a significant public health issue, and emphasizes the necessity of appropriate interventions for depression since there is compelling evidence that treatment of depression is an effective strategy for suicide prevention [3].

Interventions for depression may be considered in the context of the intervention spectrum [4] for mental health problems and mental disorders. That is, interventions for depression can be classified into 3 categories: those targeting 1) the general population (universal intervention), 2) persons with risk factors for depression (selective intervention), and 3) persons with depressive symptoms that do not meet diagnostic criteria for depression (indicated intervention).

Universal intervention seeks to enhance the overall mental health of a population, and is the most ideal. In the case of the Korean general population, however, the lifetime prevalence rate of major depression is reported to be 5.6%, and the yearly prevalence rate to be 2.5% [5]. In this case, it may be difficult to assert that universal intervention is the best intervention method when limited resources are available.

On the other hand, interventions that target high-risk groups or populations with depressive symptoms may receive more support in terms of efficiency. That is, high-risk groups or populations with depressive symptoms have a much higher prevalence of major depression, and the existence of an appropriate referral system would enable early detection and treatment of depression. In this context, primary care facilities have a very important role in interventions for depression. Persons who visit primary care facilities are all patients with physical illness, and as physical illness is an important risk factor for depression [6], an efficient approach towards depression prevention is possible.

An initial estimate of the work burden on primary care facilities involved in early detection, as well as subsequent referral and treatment, is needed in order to propose such an approach. Determining the prevalence of depression in patients of primary care facilities is necessary in order to make this estimate. However, no reports have been published on the prevalence of depression among patients who visit primary care facilities in Korea.

Therefore, this preliminary study was conducted to explore the prevalence of depression in patients visiting two primary care settings by conducting a diagnostic interview for depression, to ensure a larger representative study is needed, and to provide information needed when primary care facilities construct a system of referral to psychiatric services.

METHODS

Cases and Samples

The typical institutions that act as primary care facilities in Korea are local clinics and the departments of family medicine at various hospitals. In order to include both settings, this study was conducted with patients presenting to the department of family medicine at a university hospital in Seoul, and with adult patients visiting a local internal medicine clinic. In the case of the department of family medicine at the university hospital, the possibility of patients characteristic variability according to the particular physician or the time of day could not be eliminated. Therefore, we ensured that the study period included at least 1 consultation day for each of the 4 family medicine physicians, and that both morning and afternoon consultation hours were included. Accordingly, all patients that visited the university hospital during the afternoon consultation hours from March 14-16, 2012 and any consultation hours on March 19, 2012 were considered for study inclusion. The local internal medicine clinic was operated by 1 internal medicine physician; thus, all adult patients who visited the clinic at any time during its consultation hours on April 6 or April 13 were considered.

The criterion for adulthood was age 19 years or older. Patients were excluded if 1) the primary purpose of their visit was a referral to another department, 2) they visited for blood glucose checks only and did not meet a physician, or 3) the patient's guardian made the visit on the patient's behalf.

A total of 231 patients met the criteria for inclusion in the study. Thirty-eight patients (16.5%) refused to participate in the study and 9 (3.9%) patients refused the diagnostic examination; therefore, 184 (79.7%) patients provided written consent and were included in the final analysis. This study was approved by the institutional review board of The Catholic University of Korea. There were no statistically significant differences between the patients included in the analysis and those who were not in terms of gender, age, or level of education (data not shown).

Measurement

In order to investigate sociodemographic and health-related characteristics, a standardized interview questionnaire was used. The sociodemographic characteristics included gender, age, years of education, marital status, form of medical security, and whether they were living alone or not. Health-related characteristics included prior medical diagnoses of chronic disease

such as hypertension, heart disease, cancer, diabetes, and stroke. Past history of depression was measured by the presence or absence of a prior depression diagnosed by a medical doctor. The reasons for the health institution visit were collected by an open question and sorted into 7 categories: hypertension, diabetes, cold, digestive, musculoskeletal, medical check-up, and other. in patients over 60 years of age, a dementia screening test was also given to differentiate between dementia and decline in cognitive function resulting from depression. The dementia screening tool used was the Mini-Mental State Examination for Dementia Screening (MMSE-DS) [7]. After 2 trained investigators conducted an interview for sociodemographic and health-related characteristics, each patient was directed to a psychiatrist for a diagnostic examination for depressive disorder.

The psychiatrists conducted clinical interviews for all study patients, and made diagnoses of major depressive disorder, dysthymic disorder, and depressive disorder, not otherwise specified (NOS) based on the Diagnostic and Statistical Manual of Mental Disorders-IV criteria. Psychiatric help was recommended to the patients diagnosed with depression requiring treatment.

Data Analysis

The prevalence of depressive disorder and the proportion of newly diagnosed patients among depressive disorder patients were calculated using SAS version 9.1 (SAS Institute Inc., Cary, NC, USA).

RESULTS

General Characteristics of Subjects

The sociodemographic and health-related characteristics of the study subjects are outlined in Table 1. In terms of gender, there were more men (60.3%) than women. Nearly half of the patients were 40 to 59 years old (47.3%), and the proportions of patients younger or older were similar (26%). Among those, 97 (52.7%) of participants had up to 12 years of education. One hundred forty-one (76.6%) of subjects were married and 16.8% were single. In terms of medical security, only 3.3% of subjects were on medical welfare, while 9.8% of subjects lived alone at the time of the interview.

In the study population, 54.9% had chronic disease and 7.1% had a prior diagnosis of depression. The most common reason for the visit on the day of the study was hypertension (32.6%), followed by diabetes (30.2%), and the common cold (24.5%). In the age group of 60 or over, there were no positive results from the cognitive impairment screening test using the MMSE-DS, although four subjects was classified as normal by just one point.

Compared to patients visiting the university hospital, the ratio of men was relatively higher in patients visiting the local clinic (54.1% vs. 67.4%, respectively), and the ratio of patients with 13 years or more of education was lower (62.2% vs. 30.2%, respectively). In addition, a disproportionate number of patients presented with a cold at the local clinic (40.7%) as compared with the university hospital (10.2%).

Prevalence of Depressive Disorder

As shown in Table 2, 14.1% (95% confidence interval [CI], 9.1 to 19.2) of the subjects had a depressive disorder. In terms of specific diagnosis, 5.4% (95% CI, 2.1 to 8.7) had major depressive disorder (MDD), 1.1% (95% CI, 0.0 to 2.6) had dysthymia, and 7.6% (95% CI, 3.7 to 11.5) had depressive disorder, NOS. The prevalences of MDD for patients visiting the department of family medicine at the university hospital and the local clinic were similar, at 5.1% and 5.8%, respectively.

Past History of Depression

Among the 10 patients diagnosed with MDD in this study, 6 (60%) were newly diagnosed patients. Among the 14 patients diagnosed with depressive disorder, NOS, only 2 had been previously diagnosed with depression and 12 (85.7%) were new diagnoses. 9 out of 11 (81.8%) patients diagnosed with depressive disorder at the local clinic, and 10 out of 15 (66.6%) of patients diagnosed at the department of family medicine at a university hospital were newly diagnosed patients (Table 3).

DISCUSSION

In Western countries, it is consistently reported that the prevalence of depression in primary care facilities is about 10%; thus, the importance of the identification of depression in primary care facilities and cooperation with psychiatric specialty institutions are emphasized [8]. However, in Korea, reports of the prevalence of depressive symptoms among patients visiting primary care facilities exist [9,10], and there have been no reports on the prevalence of depressive disorder actually requiring treatment among them. Therefore, this preliminary study was conducted in order to identify the prevalence of depressive disorders in two Korean primary care facilities.

Table 1. Sociodemographic and health-related characteristics of 184 subjects

Variables	Categories	Total	Department of family medicine[1]	Local internal medicine clinic	*p*-value
Gender	Men	111 (60.3)	53 (54.1)	58 (67.4)	0.06
	Women	73 (39.7)	45 (45.9)	28 (32.6)	
Age (y)	≤39	48 (26.1)	27 (27.6)	21 (24.4)	0.23
	40-59	87 (47.3)	50 (51.0)	37 (43.0)	
	≥60	49 (26.6)	21 (21.4)	28 (32.6)	
Education (y)	≤12	97 (52.7)	37 (37.8)	60 (69.8)	<0.001
	≥13	87 (47.3)	61 (62.2)	26 (30.2)	
Marital status	Married	141 (76.6)	72 (73.5)	69 (80.2)	0.69
	Never married	31 (16.8)	22 (22.4)	9 (10.5)	
	Divorced/separated/widowed	12 (6.5)	4 (4.1)	8 (9.3)	
Medical insurance	Health insurance	178 (96.7)	94 (95.9)	84 (97.9)	0.05
	Medical care assistance	6 (3.3)	4 (4.1)	2 (2.3)	
Living alone	No	166 (90.2)	87 (88.8)	79 (91.9)	0.48
	Yes	18 (9.8)	11 (11.2)	7 (8.1)	
Chronic disease[2]	No	83 (45.1)	46 (46.9)	37 (43.0)	0.53
	Yes	101 (54.9)	52 (53.1)	49 (57.0)	
Past history of depression	No	171 (92.9)	90 (91.8)	81 (94.2)	0.59
	Yes	13 (7.1)	8 (8.2)	5 (5.8)	
Reason for seeing a doctor[3]	Hypertension	34 (34.7)	26 (30.2)	60 (32.6)	0.52
	Diabetes	12 (12.2)	7 (8.1)	19 (10.3)	0.36
	Cold	10 (10.2)	35 (40.7)	45 (24.5)	<0.001
	Digestive	7 (7.1)	11 (12.8)	18 (9.8)	0.20
	Musculoskeletal	12 (12.2)	2 (2.3)	14 (7.6)	0.01
	Medical checkup	3 (3.1)	5 (5.8)	8 (4.3)	0.36
	Others[4]	39 (39.8)	7 (8.1)	46 (25.0)	<0.001

Values are presented as number (%).
[1]Belonged to a university hospital.
[2]Presence of one or more diseases among hypertension, heart disease, cancer, diabetes, and stroke.
[3]Double check permitted.
[4]Includes thyroid diseases, hyperlipidemia, and headache.

Table 2. Prevalence of depressive disorders in primary care

Diagnosis criteria	Department of family medicine[1]		Local internal medicine clinic		Total	
	n	%	n	%	n	% (95% CI)
Normal	83	84.7	75	87.2	158	85.9
Depressive disorder	15	15.3	11	12.8	26	14.1 (9.1, 19.2)
Major depressive disorder	5	5.1	5	5.8	10	5.4 (2.1, 8.7)
Dysthymia	2	2.0	0	0.0	2	1.1 (0.0, 2.6)
Depressive disorder, not otherwise specified	8	8.2	6	7.0	14	7.6 (3.7, 11.5)
Total	98	53.3	86	46.7	184	100.0

CI, confidence interval.
[1]Belonged to a university hospital.

In the Korean health delivery system, primary care facilities include not only local clinics, but also departments of family medicine in higher-level healthcare facilities. Thus, this study included both a local clinic and the department of family medicine of a tertiary care center located in the same borough to reflect the primary care setting in the real world.

Table 3. Past history of depression by current diagnosis

Current diagnosis	Past history					
	Department of family medicine[1]		Local internal medicine clinic		Total	
	No	Yes	No	Yes	No	Yes
Normal	80 (96.4)	3 (3.6)	72 (96.0)	3 (4.0)	152 (96.2)	6 (3.8)
MDD	3 (60.0)	2 (40.0)	3 (60.0)	2 (40.0)	6 (60.0)	4 (40.0)
DY	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	1 (50.0)	1 (50.0)
DD, NOS	6 (75.0)	2 (25.0)	6 (100.0)	0 (0.0)	12 (85.7)	2 (14.3)
Total	90 (91.8)	8 (8.2)	81 (94.2)	5 (5.8)	171 (92.9)	13 (7.1)

Values are presented as number (%).
MDD, major depressive disorder; DY, dysthymia; DD, depressive disorder; NOS, not otherwise specified.
[1]Belonged to a university hospital.

Accordingly, another strategy was required in order to avoid selection bias in the two primary care settings. In the case of the local clinic, there was 1 physician present, and therefore, the prevalence rate of depression for all patients who visited the clinic on a selected day could be investigated. However, in the case of the department of family medicine in a tertiary care center, there were 4 physicians; if the patients of only particular physicians were to be included in the study population, this could have introduced bias. In the tertiary care center, therefore, the depression prevalence data was collected such that all 4 physicians' consultation hours were included in order to avoid the inclusion of only the patients under one particular doctor's care.

Moreover, for the patients who refused to participate in the study, minimal data was collected for sociodemographic characteristics in order to compare with the study participants. There were no significant differences in characteristics such as gender, age, and education level among those who did and did not participate in the study (data not shown).

The basic assessment included data such as past history of depression, cognitive function, and reason for the visit, which could have affected the psychiatrists' diagnoses. Therefore, the psychiatrists who conducted interviews for the diagnosis of depression were blinded to the results of the basic assessment by the study investigators.

The prevalence of any depressive disorder (MDD, dysthymic disorder, depressive disorder, NOS) was 14.1% (95% CI, 9.1 to 19.2), and that of MDD specifically was 5.4% (95% CI, 2.1 to 8.7) in the study sample. Given that the yearly prevalence rate of MDD in Korea's general population is 3.6%, and that the lifetime prevalence rate is 7.5% [5], the prevalence of MDD in patients visiting primary care facilities is very high relatively. In the US, the yearly prevalence rate of MDD is 5.3% in the community, and 5% to 13% in primary healthcare facilities [11,12].

It is more common to encounter a patient with depression in primary care facilities as compared to the general population. Thus, primary care facilities offer an important opportunity in the management of depression. Given that about 80% of the general population visits a primary care facility at least once a year, a depression management system targeting primary care facility patients may be very efficient. The UK recommends depression management for patients at high risk for depression [13], and the US recommends it for all patients [8]. However, it must be noted that the health systems of both countries implement depression management for primary care facility patients. The screening and identification of patients in primary care facilities, as well as follow-up management and cooperation with psychiatric specialists, are critically important aspects of this system [8,13].

In this study, 73% (19 out of 26) of the patients diagnosed with depressive disorder were newly diagnosed. Typically, these diagnoses cannot be confirmed unless primary care facilities inquire about depression, and therefore, patients are not usually led to treatment. Although 60% (6 out of 10) of the patients with MDD were newly diagnosed, the fact that there had been no medical management for these patients is very surprising. The WHO emphasizes the identification and treatment of mental disorders including depression, because that is an important suicide prevention strategy at the individual level [3], and because the population-based attributable risk of MDD to suicide reaches 27% [14].

Depression is known to be a very common and treatable mental illness [15-17]. However, Korea is one of those societies in which misconceptions about mental illness are widespread. Although awareness of mental illness has recently improved, there remains a tendency to avoid treatment of depression for

fear of being labeled a psychiatric patient [18,19]. Given this situation, the management of depression based on a cooperative framework of primary care facilities and psychiatric specialists should be given consideration, as it could help decrease patients' fear of being stigmatized [20-22], provide relatively greater accessibility to mental health care, and be efficacious in the treatment of depression [23,24].

This is the first study to determine the prevalence of depression which was diagnosed by a psychiatrist's clinical interview and needed to be treated clinically among outpatients visiting a primary care setting in Korea. However, because data was collected and analyzed in two facilities in a preliminary fashion, the generalizability of the results of this study into all primary care settings in Korea is limited. Nevertheless, a high prevalence consistent with previous studies in primary care patients reveals that a larger study using a representative sample is needed to generate more robust results to inform future intervention programs.

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CONFLICT OF INTEREST

The authors have no conflicts of interest with the material presented in this paper.

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