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Diagnostic Transitions from Primary Psychiatric Disorders to Underlying Medical Conditions: A 5-Year Retrospective Survey from a University Hospital Sample

ABSTRACT

Background: Undiagnosed underlying medical conditions can cause many patients to be followed, for years, by a diagnosis of a primary psychiatric disorder and to receive inappropriate treatment. The aim of this study was to determine the prevalence of patients initially diagnosed with a primary psychiatric disorder but whose symptoms were later attributed to medical conditions. These patients' initial and final diagnoses were also examined.

Methods: The records of 1843 patients hospitalized in Gazi University Faculty of Medicine Psychiatric Inpatient Clinic between 2015 and 2020 were examined in this retrospective and descriptive study. Thirteen patients were excluded from the study due to insufficient data. Descriptive statistics were performed on the data of 30 patients diagnosed with an underlying medical condition.

Results: In follow-up, 49 patients' diagnoses changed. 19 patients had a diagnosis unrelated to an underlying medical condition, and 30 had a diagnosis related to an underlying medical condition. Five (16.7%) of the patients, previously known to have psychiatric disorders, were found to have Alzheimer's disease. Brain space-occupying lesions, frontotemporal dementia, epilepsy, Parkinson's disease, and Arnold–Chiari malformation followed Alzheimer's disease at 6.7% (n = 2). The mean time until the diagnosis of the patients was revised was 4.95 years (standard deviation [SD] = 7.78). It was observed that psychotropic medications (90%) were used more than non-psychotropic drugs until the diagnosis was revised.

Conclusion: During the diagnostic process, we believe that clinicians should be aware of potential underlying medical conditions and that the multidisciplinary work of psychiatry and neurology is also crucial.

Keywords: Diagnosis, etiology, misdiagnosis, psychiatry

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Introduction

Symptoms related to mental illnesses can be the beginning of many medical diseases as well as psychiatric disorders.[1] For this reason, many patients can be followed and treated for years with a diagnosis of primary psychiatric disorder as a result of their underlying medical conditions not being noticed. As a result, delays in appropriate medical treatment for patients, unnecessary use of psychotropic drugs, and various mental and physical complications may occur.

According to the Diagnostic and Statistical Manual of Mental Disorders (*DSM-5*), the psychiatric presentation of a medical condition can be defined as "Psychotic Disorder Due to Another Medical Condition".[2] Evaluation of patients presenting with various psychiatric complaints can often be difficult and may sometimes lead to early psychiatric diagnoses. For example, an underlying medical condition was found in approximately 5% of first-episode psychoses with a clinical appearance indistinguishable from schizophrenia.[3] When a medical condition

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causing psychosis is identified, the diagnosis is called "Psychosis Due to Another Medical Condition" according to the DSM-5. As stated in these examples, in some of the patients who were followed up with a psychiatric diagnosis, the presence of other clinical pictures in the etiology can be detected later on.

Neurological diseases and some medical conditions (metabolic, infectious, toxic, etc.) in which the central nervous system (CNS) is affected constitute an important part of these. Neurodegenerative conditions like parkinsonism or dementia, epilepsies, brain tumors, infections, drug intoxication, thyroid disorders, metabolic and/or septic encephalopathies, etc. that affect the CNS may first be discovered by the presence of psychiatric symptoms.[4] These psychiatric symptoms are varied and may present themselves as psychotic moods and/or anxiety symptoms. In a previous study, an underlying medical condition was found in 1 of 4 patients in the retrospective screening of patients with schizophrenia.[5]

When examining underlying medical conditions in anxiety disorders, especially panic disorder, it is important to consider endocrinological causes such as hypothyroidism, hyperthyroidism, pheochromocytoma, and insulinoma. Additionally, other potential causes to be considered include epilepsy, malignancies, pathologies of the cardiopulmonary system, drug intoxications, and drug discontinuation.[6]

The purpose of our study was to determine the frequency of individuals who were initially followed by a primary diagnosis of psychiatric disorder but later attributed this diagnosis to an underlying neurological, infectious, metabolic, traumatic, toxic, or similar underlying medical condition. Furthermore, we sought to observe the distribution of these patients' initial and final diagnoses throughout the follow-up periods, in addition to their sociodemographic and clinical characteristics.

Material and Methods

Study Design

This study is a retrospective descriptive study. The population of the research consisted of patients receiving inpatient treatment at the psychiatric clinic of Gazi University Faculty of Medicine Hospital between January 1, 2015, and December 31, 2019. Hospitalization records were obtained from the hospital's electronic registry system. Two psychiatrists individually reviewed the records of each hospitalized patient. The study included epicrisis notes from inpatients, consultation notes, medication reports, health board reports, laboratory tests (complete blood count, liver function tests, kidney function tests, electrolytes, vitamins, etc.), imaging and neurophysiological tests (computed tomography (CT) scans, magnetic resonance imaging (MRI)s, positron emission tomography (PET), electroencephalography (EEG), etc.), and neuropsychological tests.

Patient Selection

The study population consisted of 1830 patients (1043 male patients and 797 female patients). After the examination, the data of the patients who met the inclusion criteria were recorded in the study data forms by the researchers.

The psychiatric diagnoses of the patients were evaluated by psychiatrists according to the DSM-5. However, since it is more appropriate to use the International Classification of Diseases, Tenth Revision (ICD-10) diagnostic classification in terms of universal evaluation of all disease groups, the evaluated psychiatric diagnoses were recorded in the system with the most appropriate code (ICD-10). Diagnostic evaluations performed in our hospital are reviewed numerous times. After admission to the psychiatry inpatient unit, patients are first examined by the psychiatry residents. The senior faculty member of the inpatient unit was consulted for diagnosis and treatment planning. During visitations, the patients were evaluated together. Patients with the suspected diagnosis were re-evaluated at general visits with the participation of all faculty members. When it was thought that there was an underlying medical condition, consultation was requested from relevant departments (neurology, neurosurgery, physical therapy, etc.). In all cases in which there was diagnostic confusion, the opinion of the faculty member of the relevant department was obtained. The diagnosis of these cases was evaluated in a multidisciplinary manner, and their treatment was arranged. Therefore, the diagnostic evaluations of the patients were handled in a very comprehensive and detailed way. Our study shows similar methodological features to 2 studies conducted in Portugal and China in terms of design and patient selection.[5,7]

To reduce bias, a wide time period of 5 years was determined to ensure that a sufficient number of patients were included in the study, and patients with insufficient records were excluded from the study.

Inclusion and Exclusion Criteria

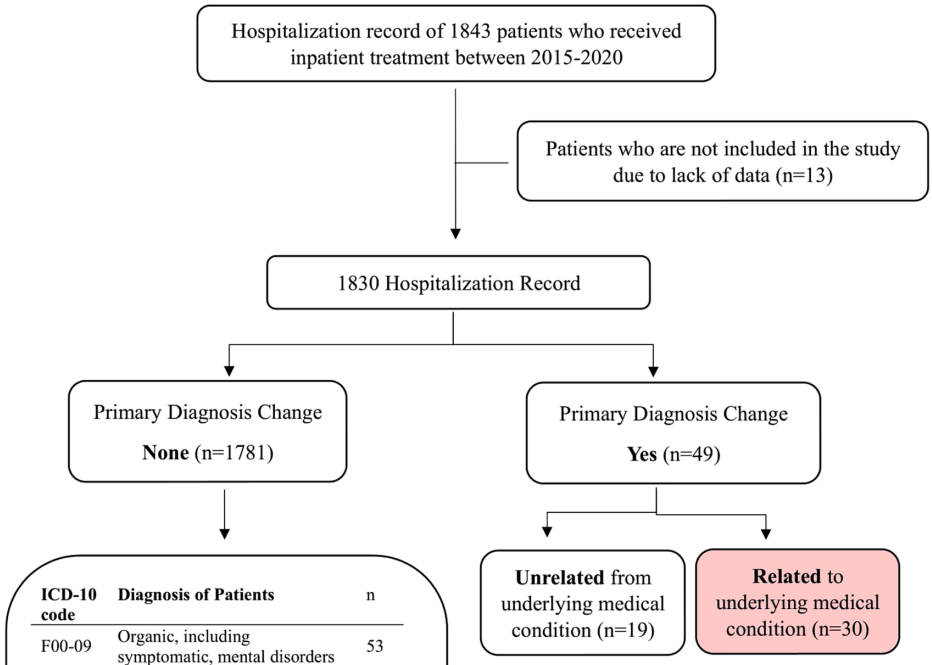
Inclusion criteria in the study were being followed up with a primary psychiatric diagnosis in the past (in our hospital or an external center), independent of additional physical diseases, and having no better explanation of these psychiatric symptoms by another underlying etiology over time (Figure 1). Insufficient patient data for analysis was considered an exclusion criterion; thus, 13 patients were excluded from the study.

Variables

The study examined the sociodemographic characteristics of the patients, including age, gender, place of birth, employment status, educational status, and marital status. Additionally, the study investigated the patients' habits related to smoking, alcohol, and substance use, as well as their psychiatric family history. The first psychiatric diagnosis, such as schizophrenia or depression, was recorded, along with the age at which the diagnosis was made. The duration between the onset of symptoms and the diagnosis of the underlying medical condition was also considered. The study further analyzed the total number of hospitalizations and the duration of the most recent hospitalizations. The drug groups used by

MAIN POINTS

- *Thirty in 1830 psychiatric disorder diagnosis changed into an underlying medical condition.*
- *Five (16.7%) of the patients, interpreted as having psychiatric disorders, were found to have Alzheimer's disease.*
- *Alzheimer's disease was followed by a space-occupying lesion, frontotemporal dementia, epilepsy, Parkinson's disease, and Arnold–Chiari malformation.*
- *This study emphasizes the importance of conducting the follow-up process in a multidisciplinary manner.*



ICD-10 code	Diagnosis of Patients	n
F00-09	Organic, including symptomatic, mental disorders	53
F10-19	Mental and Behavioral Disorders Due to Psychoactive Substance Use	157
F20-29	Schizophrenia, Schizotypal and Delusional Disorders	583
F30-31	Manic Episode, Bipolar Affective Disorder	307
F32-33	Depressive Disorders	388
F41	Anxiety Disorders	82
F42	Obssessive Compulsive Disorder	77
F43	Reaction to severe stress and adjustment disorders	26
F44	Dissociative (Conversion) Disorders	60
F45	Somatoform Disorders	15
F50	Eating Disorders	15
F60-69	Personality Disorders	14
	Other	23

Figure 1. Flowchart of the study (patient selection) ICD-10, the International Classification of Diseases, Tenth Revision.

the patients during their follow-up, categorized as psychotropic or non-psychotropic, were documented. The medication groups used by the patients during their follow-up before their diagnoses were revised were documented and classified as psychotropic and non-psychotropic. If patients used both drug groups during this period, they were included in the group using psychotropic drugs. Additionally, the tests conducted to revise the diagnosis were examined, as was the underlying cause that was identified at the end of the follow-up period. The study also took into account any medical conditions, such as myelinating diseases, encephalitis, or hypothyroidism, and identified the units where the patients were monitored during this process. Finally, any additional physical and mental diseases were also considered in the analysis.

Statistical Analysis

Following the assignment of numerical values to each variable, a database was constructed to facilitate the statistical analysis of the data. Mean, standard deviation, median, minimum value, maximum value, frequency, percentages, quartiles (Q1, Q2, Q3), and interquartile range (IQR = Q3-Q1) were used for descriptive statistics. Percentages and frequencies were used for sociodemographic data, total number of hospitalizations, type of drug used in the period until the diagnosis was revised, distribution of the first and last diagnoses, and imaging methods used to revise the diagnosis. The age at which symptoms first appeared and the duration until the diagnosis was revised were assessed using Q1, Q2, Q3, and IQR values, in addition to the mean, minimum, and maximum values. Statistical evaluations were made using the Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM SPSS Corp.; Armonk, NY, USA) program.

Ethical Approval

Ethical approval was obtained from the Gazi University Ethics Committee with the research code 340 (Approval No: 340). Since the hospitalization records will be used, permission was also obtained from the chief physician of the hospital. The research was conducted according to the ethical principles of the Declaration of Helsinki. Due to the retrospective nature of the study, an informed consent form was not required.

Results

During the subsequent period, the diagnoses of 49 (2.6%) patients underwent changes. 19 patients were diagnosed with another primary psychiatric disorder, while 30 patients were diagnosed with a disease associated with an underlying medical condition.

The mean age of the sample, which consisted of 30 patients whose diagnosis was revised depending on an underlying medical condition, was 45.9 (18.1) years. Twenty (66.7%) of the patients were male, 18 (60%) were born in rural areas, 12 (40%) were primary school graduates, and 19 (63.3%) were married. Alcohol was consumed by 3 patients (10%), while smoking was prevalent among 7 patients (23.3%). Sociodemographic characteristics of the study population are shown in Table 1.

Table 1. Sociodemographic Characteristics of the Study Population

Variables	n (%)
Age	
Mean (SD)	45.9 (18.1)
Minimum–maximum	19-82
Q1–Q2 (median)–Q3	29–48.5–59
Interquartile range	30
Gender	
Female	10 (33.3)
Male	20 (66.7)
Place of birth	
Rural	18 (60.0)
Urban	12 (40.0)
Employment status	
Not working	9 (30.0)
Private sector	6 (20.0)
Public employee	3 (10.0)
Student	3 (10.0)
Retired	9 (30.0)
Educational status	
Primary school	12 (40.0)
Secondary school	3 (10.0)
High school	10 (33.3)
University	5 (16.7)
Marital status	
Single	11 (36.7)
Married	19 (63.3)
Smoking condition	
No	23 (76.7)
Yes	7 (23.3)
Alcohol usage	
No	27 (90.0)
Yes	3 (10.0)
Drug usage	
No	29 (96.7)
Yes	1 (3.3)
Family history of a psychiatric illness	
No	28 (93.3)
Yes	2 (6.7)

According to the analysis, the period until the diagnosis of the patients became clear was 4.95 years (standard deviation [SD] = 7.78). The length of stay at the last hospitalization when the diagnosis became clear was 28.3 (16.3) days. It was found that 63.3% (n = 19) of the patients had at least 1 previous hospitalization before the diagnosis was made obvious.

It was observed that the use of psychotropic drug therapy was much more common (90%) compared to non-psychotropic drugs (3.3%) as the treatment method used before the definitive diagnosis was determined. An observation was made that 3 patients who had not previously utilized psychotropic medication were subsequently diagnosed with depression and received cognitive behavioral therapy to alleviate their symptoms. Additionally, 1 patient was found to have used hydroxyzine for insomnia in combination with therapy. Table 2 outlines the procedures for diagnosing diseases in addition to the information on hospitalizations for the sample.

Psychiatric diagnoses before the etiologies were revised are shown in Table 3. Accordingly, 40% (n = 12) of the patients were diagnosed with depression and 30% (n = 9) with schizophrenia. Delusional disorder and functional neurological symptom disorder diagnoses followed these 2 disorders with a rate of 6.7% (n = 2). The mean time to clarification of the underlying etiology was 3.2 years for depression, 6.5 years for schizophrenia, 2 years for functional neurological symptom disorder, and 5.2 years for delusional disorder.

The mean age at symptom onset of 12 patients who were followed up with a misdiagnosis of depression was 48.4 years old, and the mean age at which their diagnoses were revised was 51.6 years old.

Table 2. Characteristics of Patients' Diagnosis Processes and Hospitalization Information

Variables	n (%)
Age at which the first signs of a cleared etiology appear	
Mean (SD)	40.4 (18.7)
Minimum–maximum	15-82
Q1–Q2 (median)–Q3	21–40–56
Interquartile range (IQR)	35
Time until the diagnosis is clear (years)	
Mean (SD)	5 (7.8)
Minimum–maximum	0.04-37
Q1–Q2 (median)–Q3	0.5–2–5
Interquartile range	4.5
Hospitalization	
None	7 (23.3)
1 time	19 (63.3)
2 times	2 (6.7)
3 times	1 (3.3)
>3 times	1 (3.3)
Average length of stay at the last hospitalization where the diagnosis was revised (days)	
Mean (SD)	28.8
Minimum–maximum	14-81
Treatment method used until the diagnosis is clear	
Follow-up without a medication	2 (6.7)
Use of psychotropics	27 (90.0)
Non-psychotropic drug use	1 (3.3)

Table 3. Psychiatric Diagnoses Before the Real Diagnosis Were Revised

Diagnosis	n (%)	Mean Time Until Underlying Etiology Is Clarified (Years)
Depression	12 (40.0)	3.2
Schizophrenia	9 (30.0)	6.5
Functional neurological symptom disorder	3 (10.0)	2
Delusional disorder	2 (6.7)	5.2
Atypical psychosis	1 (3.3)	0.5
Bipolar affective disorder	1 (3.3)	7
Somatization disorder	1 (3.3)	17
Other anxiety disorders	1 (3.3)	5

Nine patients who were misdiagnosed with schizophrenia had a mean age at symptom onset of 27.7 years and a mean age at diagnosis revision of 34.2 years.

The revised underlying medical condition distributions are shown in Table 4. Accordingly, 16.7% (n = 5) of the diseases interpreted as psychiatric were found to be Alzheimer's disease. Alzheimer's disease was followed by brain space-occupying lesions, frontotemporal dementia, epilepsy, Parkinson's disease, and Arnold–Chiari malformation with rates of 6.7% (n = 2).

Dementia was detected in 5 of 12 depression patients; 4 of them had Alzheimer's disease, and 1 had frontotemporal dementia. Parkinson's disease, B12-folic acid deficiency, antiphospholipid syndrome, giant arachnoid cyst, vasculitis, meningioma, and Arnold–Chiari malformation have been observed in other depression patients. Additionally, 9 different organic etiologies were detected in 9 schizophrenia patients (Parkinson's disease, moderate–severe mental retardation, traumatic brain injury, stroke, Behçet's disease, space-occupying lesion, Sydenhanm's chorea, encephalitis, hydrocephalus).

Table 4. Distributions of Revised Underlying Medical Conditions

Diagnosis	n (%)
Alzheimer's disease	5 (16.7)
Space-occupying lesion*	4 (13.3)
Frontotemporal dementia	2 (6.7)
Arnold–Chiari malformation	2 (6.7)
Epilepsy	2 (6.7)
Parkinson's disease	2 (6.7)
Traumatic brain injury	1 (3.3)
Encephalitis	1 (3.3)
B12 – Folic acid deficiency	1 (3.3)
Stroke	1 (3.3)
Antiphospholipid syndrome	1 (3.3)
Behcet's disease	1 (3.3)
Hydrocephalus	1 (3.3)
Lujan–Fryns syndrome	1 (3.3)
Multiple sclerosis	1 (3.3)
Moderate-to-severe mental retardation	1 (3.3)
Sydenham's chorea	1 (3.3)
Vasculitis	1 (3.3)
Endocrinological pathology	1 (3.3)

*Giant arachnoid cyst, meningioma.

Table 5. Distribution of Examination Methods Performed in the Diagnosis Revising Process

Examination Methods	Normal n (%)	Abnormal* n (%)	Total n (%)
Computed Tomography	1 (20)	4 (80)	5 (100)
Magnetic resonance imaging	1 (3.8)	24 (96.2)	25 (100)
Positron emission tomography	0 (0)	3 (100)	3 (100)
Electroencephalogram	9 (56.3)	7 (43.7)	16 (100)
Urine analysis	4 (100)	0 (0)	4 (100)
Neuropsychological tests	1 (14.3)	5 (85.7)	6 (100)
Blood tests**	19 (63.3)	11 (36.7)	30 (100)

*Associated with underlying medical condition.
**Complete blood count, liver function tests, kidney function tests, electrolytes (sodium, potassium, magnesium, calcium), vitamin B12, folate, thyroid function tests.

The distribution of evaluation methods that play a fundamental role in revising the diagnoses of patients whose primary diagnosis changes in relation to the underlying medical condition during hospitalization is shown in Table 5. Apart from blood tests, other tests (CT, EEG, etc.) are not routine tests for inpatients but are performed only when further tests are needed in the diagnosis and follow-up processes of patients. Magnetic resonance imaging (MRI) was the most frequently performed examination method, with a rate of 83.3%. Electroencephalography was requested from 53.3% of the sample, neuropsychological testing from 20%, brain computerized tomography (CT) from 16.7%, and PET imaging from 10%. The studies that identified the most prevalent abnormalities associated with underlying medical conditions were as follows: PET (100%), MRI (96.2%), neuropsychological tests (85.7%), CT (80%), EEG (43.7%), and blood tests (36.7%). Normal results were reported for every urine analysis. All urine analyses were reported as normal.

Discussion

It was observed that the 2 leading diagnoses of a total of 30 patients, whose diagnoses were revised according to the underlying medical condition, were depression (n = 12) and schizophrenia (n = 9). A total of 8 different initial diagnoses were changed to 19 different final diagnoses. Our findings primarily suggest that clinicians should be alert to many different possible underlying medical conditions. The age at which a patient's symptoms begin, the age at which their diagnosis changes, the length of time the diagnosis change process takes, and the most commonly used evaluation methods for diagnostic revision are discussed below.

The rate of change in diagnosis, which was found to be 2.6% in 49/1830 in our study, is quite low compared to the rate (25%) in a similar study in Portugal where patients diagnosed with schizophrenia were examined retrospectively.[5] The mean age at the onset of symptoms for all patients was 40.4 years; however, the mean age at which the diagnosis was revised was 45.9 years. While the observation of symptoms in primary psychiatric disorders at unusual ages serves as a warning sign for organicity,[8] people whose symptoms occur within the predicted age range also require attention.

The mean duration of the diagnostic delay was 5 years; however, the 2 most prevalent diagnostic groups experienced delay times of 3.2 years for depression and 6.5 years for schizophrenia. This diagnostic delay may result in patients experiencing a delay in receiving

appropriate treatment, a decline in their overall well-being, avoidable use of psychotropic drugs, and the associated adverse effects, as well as an increase in morbidity.

The mean age at symptom onset of 9 patients who were followed up with a misdiagnosis of schizophrenia was 27.7 years old, and the mean age at which their diagnoses were revised was 34.2 years old. In addition, while 9 different organic etiologies were detected in 9 schizophrenia patients, 11 different etiologies were detected in a total of 12 patients when delusional disorder (n = 2) and atypical psychosis patients (n = 1) were included. Based on our research, the patients' mean age at which symptoms first appeared is consistent with the range of ages at which primary schizophrenia typically manifests (in general, the peak incidence for the diagnosis of schizophrenia is between 20 and 24 years old in males and between 25 and 35 years old in females).[9] This suggests that clinicians should consider a number of underlying medical conditions, particularly when first evaluating a patient with first-episode psychosis, as the consequences could become severe if these conditions are overlooked.

To differentiate between primary and secondary psychosis, there are currently no valid pathognomonic indicators. In order to make a primary psychosis diagnosis, the clinician must first eliminate all other possible explanations. To exclude alternative etiologies of psychotic symptoms, a comprehensive medical history and physical examination are necessary. Unusual age of onset of psychiatric symptoms, lack of familial history of mental illness, absence of prior psychiatric history, inadequate response to psychiatric treatment, symptoms that are more severe than anticipated, psychopathology subsequent to a sudden alteration in personality, co-occurring medical conditions known to be associated with psychosis, and cognitive impairment abnormalities are clinical symptoms that warrant suspicion regarding secondary causes of psychosis.[10,11]

In our study, it was determined that the most common underlying medical condition in patients with major depression was dementia, including Alzheimer's disease and frontotemporal dementia. The mean age at symptom onset of 12 patients who were followed up with a misdiagnosis of depression was 48.4 years old, and the mean age at which their diagnoses were revised was 51.6 years old. It is not uncommon to suspect dementia in an elderly patient who is being followed up with a diagnosis of depression. However, when the age is younger, it may be more difficult to remember conditions such as early-onset Alzheimer's disease. The existence of common risk factors, the fact that depressive symptoms can be a prodromal symptom of dementia, the fact that depression is a risk factor for dementia, and the overlapping of cognitive symptoms in both conditions cause some difficulties in clarifying the diagnosis.[12,13]

In our study, it was observed that neuroimaging methods requested when indicated revealed higher rates of abnormal findings (related to the underlying medical conditions) compared to blood tests routinely requested from all hospitalized patients. The rates of clinically relevant abnormal findings in the examination methods performed during the diagnosis revision process were 100% for PET, 85.7% for MRI, 85.7% for neuropsychological tests, and 80% for CT.

In previous research, it was found that structural abnormalities were observed in 93% of neuroimaging examinations of elderly patients with chronic psychiatric symptoms that were associated with an organic etiology.[14] Although it can be said that there is no universally accepted method for performing initial diagnostic tests for psychotic diseases, regardless of age,[15] in a meta-analysis study, the prevalence of clinically significant neuroradiological abnormalities in first-episode psychosis was estimated to be 6%, and the number of patients requiring screening to detect 1 clinically significant abnormality was estimated to be 18. Based on these findings, the routine use of MRI as part of the initial evaluation in patients presenting with first-episode psychosis has been recommended.[16] As opposed to MRI, CT studies examining radiological abnormalities in patients with psychosis have produced estimates that are considerably lower. This observation can be attributed to the CT's comparatively low sensitivity in identifying intracranial abnormalities among individuals diagnosed with psychosis.[17,18] In summary, it can be said that the use of neuroimaging techniques required in cases of diagnostic doubt can be very useful in clinical practice.

Physical and neurological examinations are not specific to primary psychiatric disorders; nevertheless, they may indicate a secondary etiology of psychosis depending on the results of the examination.[19] We think that it is important for doctors working in primary health care facilities, where it is not possible to apply a multidisciplinary approach or advanced neuroimaging examinations, to receive adequate training in common psychiatric disorders and the alarming findings associated with these disorders.

The strengths of our study include the inclusion of all psychiatric diagnoses rather than only certain psychiatric diagnoses, such as schizophrenia or depression, in terms of diagnostic change and the determination of a sufficiently long time interval of 5 years.

It should be kept in mind that psychiatric symptoms may be seen as the first sign of neurological, metabolic, or infectious diseases. We think that our study is important in highlighting this situation and making us aware of the fact that psychiatrists, and especially neurologists, should approach these patients in a multidisciplinary manner and should not hesitate to perform further examinations in order to make a correct diagnosis. We think that in this way, delays in the application of appropriate medical treatments to patients or unnecessary use of psychotropic drugs will be prevented. Further investigations with larger sample sizes should be made.

Limitations

There are some limitations to our study. First, only descriptive statistics were used due to the retrospective design of our study and the small number of identified patients. Another limitation is that drugs, such as those given to patients, cannot be evaluated. Psychiatric symptoms may also occur due to drug side effects in epilepsy patients. It can be very difficult to distinguish whether the side effects are primarily due to epilepsy or to an antiepileptic drug side effect. In this study, we evaluated patients who applied to a psychiatric clinic and whose primary diagnosis was subsequently changed to non-psychiatric. However, the nature of some neurological diseases can trigger psychiatric diseases. There is evidence to suggest that the opposite is also true. Artificial dichotomic questions can be considered a limitation for our study due to the unclear boundaries on this issue. During admission, the patients were hospitalized with a psychiatric diagnosis in mind. However, it is important to keep in mind that certain patients may be admitted with additional pre-existing

medical conditions. Consultation services were requested from the relevant departments for these patients, and no advanced research methods were used while the patient was in the ward, apart from routine practices. During the discharge phase, appointments were made with the relevant departments for follow-up, and necessary guidance was provided. Our study focuses only on changes during the hospitalization period. Therefore, the unknown course of patients' diagnoses after discharge can be considered a limitation.

Availability of Data and Materials: *The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.*

Ethics Committee Approval: *This study was approved by the Ethics Committee of Gazi University (Approval No: 340).*

Informed Consent: *Due to the retrospective nature of the study, an informed consent form was not required.*

Peer-review: *Externally peer-reviewed.*

Author Contributions: *Concept – B.E.M., B.C.; Design – B.E.M., S.A., S.E.T., B.G., T.A., B.C.; Supervision – B.G., B.C.; Resources – N/A; Materials – N/A; Data Collection and/or Processing – B.E.M., S.E.T.; Analysis and/or Interpretation – B.G., T.A.; Literature Search – B.E.M., S.A., S.E.T.; Writing – B.E.M., S.A., S.E.T., T.A.; Critical Review – S.A., B.G., B.C.*

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References

1. Kokurcan A, EC, A. Şizofreni ayırıcı tanısı: başka bir tıbbi duruma bağlı psikotik bozukluk ve nörogelişimsel bozukluklardaki psikoz belirtileri. *Turk Psikiyatr Derg*. 2015;26:279-290.
2. APA . *Diagnostic and Statistical Manual of Mental Disorders*. The American Psychiatric Association; 2013.
3. Tamminga CA, Jim van Os MD, Ivleva EMD, eds. *Psychotic Disorders: Comprehensive Conceptualization and Treatments*. Oxford University Press; Oxford; 2020.
4. Yeager-Cordial E, Ison J, Becker R, Boyd C, Weinstock M. Psychiatric manifestations of organic disease: don't get fooled!. *J Urgent Care Med*. 2022;11:11-15.
5. Marques JG. Organic psychosis causing secondary schizophrenia in one-fourth of a cohort of 200 patients previously diagnosed with primary schizophrenia. *Prim Care Companion CNS Disord*. 2020;22(2):27065. [CrossRef]
6. Sadock BJ. Bozkurt A, Ruiz P. *Kaplan & Sadock Psikiyatri: Davranış Bilimleri/ Klinik Psikiyatri. Onbirinci baskı*; Güneş Tıp Kitabevleri: 2016.
7. Liu F, Gao M, Wu Q, et al. Diagnostic stability in psychiatric patients from hospital admission to discharge: A 10-year retrospective study. *Psychiatry Investig*. 2023;20(5):461-470. [CrossRef]
8. Grover S, Sahoo S, Chakravarty R, Chakrabarti S, Avasthi A. Comparative study of symptom profile of catatonia in patients with psychotic disorders, affective disorders and organic disorders. *Asian J Psychiatry*. 2019;43:170-176. [CrossRef]
9. Musket CW, Kuo SS, Rupert PE, et al. Why does age of onset predict clinical severity in schizophrenia? A multiplex extended pedigree study. *Am J Med Genet B Neuropsychiatr Genet*. 2020;183(7):403-411. [CrossRef]
10. Reinhardt MM, Cohen CI. Late-life psychosis: diagnosis and treatment. *Curr Psychiatry Rep*. 2015;17(2):1. [CrossRef]
11. Marsh CM. Psychiatric presentations of medical illness. *Psychiatr Clin North Am*. 1997;20(1):181-204. [CrossRef]
12. Javadpour A, Sehatpour M, Mani A, Sahraian A. Assessing diagnosis and symptoms profiles of late-life psychosis. *GeroPsych*. 2013;26(4):205-209. [CrossRef]
13. Blackman G, Neri G, Al-Doori O, et al. Prevalence of neuroradiological abnormalities in first-episode psychosis: A systematic review and meta-analysis. *JAMA Psychiatry*. 2023;80(10):1047-1054. [CrossRef]
14. Srisudha B, Nandyal MB, Kolloju N, Joseph RG, Karuppusami R, Kurian S. Psychiatric presentations and factors associated with suspected organicity in elderly attending a tertiary care facility in South India. *J Indian Acad Geriatr*. 2023;19(1):47-53. [CrossRef]
15. Albon E, Tsourapas A, Frew E, et al. Structural neuroimaging in psychosis: a systematic review and economic evaluation. *Health Technol Assess*. 2008;12(18):iii-iv. [CrossRef]
16. Srivastava R, Holmes RD, Noel CW, Lam TV, Shewchuk JR. Reducing neuroimaging in first-episode psychosis by facilitating uptake of choosing wisely recommendations: a quality improvement initiative. *BMJ Open Qual*. 2021;10(3):e001307. [CrossRef]
17. Johnstone EC, Cooling NJ, Frith CD, Crow TJ, Owens DGC. Phenomenology of organic and functional psychoses and the overlap between them. *Br J Psychiatry*. 1988;153(6):770-776. [CrossRef]
18. Savva GM, Zaccai J, Matthews FE, et al. Prevalence, correlates and course of behavioural and psychological symptoms of dementia in the population. *Br J Psychiatry*. 2009;194(3):212-219. [CrossRef]
19. Wiels W, Baeken C, Engelborghs S. Depressive symptoms in the elderly—an early symptom of dementia? A systematic review. *Front Pharmacol*. 2020;11:34. [CrossRef]