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Statistical Compilation

Performance of Medical Psychiatry Units at Tokyo Metropolitan Matsuzawa Hospital and the Challenges They Face

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Abstract

Persons with mental disorders are entitled to appropriate treatment for physical comorbidities. However, the measures in place for this in Japan are far from sufficient, with each region operating its own medical-psychiatric treatment system for physical comorbidities in accordance with its particular situation. Tokyo Metropolitan Matsuzawa Hospital began operating its medical psychiatry units (MPUs) in 1977. The present report provides current information on the performance of MPUs and the challenges they face. The MPUs at Matsuzawa Hospital contains 131 beds and received 1,099 patients in 2019. Many patients with dementia or schizophrenia were admitted for recurrent aspiration pneumonia, fractures, and gastrointestinal cancer due to aging. However, the bed utilization rate remains low due to issues related to the economics of health care such as insufficient nurse staffing standard. The medical-psychiatric treatment system for physical comorbidities requires further improvement to guarantee the rights of persons with mental disorders.

Keywords：comorbidity, mental disorder, medical psychiatry unit

Introduction

Persons with mental disorders are entitled to appropriate treatment for physical comorbidities. According to a 2008 Health and Labour Sciences Research study, 47% of patients hospitalized in psychiatric beds have physical comorbidities, and 14% of all patients require inpatient physical management 7).

Since the late 2000s, a variety of measures have been proposed to address this issue. In 2008, treatment of physical comorbidities in psychiatric patients was supported by insurance reimbursement for the first time: an additional fee for management of comorbidities and an admission fee for psychiatric emergencies and comorbidities were introduced. In 2012, a nurse staffing with a nurse-to- patient ratio of 1:13 was introduced for psychiatric patients with physical comorbidities. In the same year, the fifth medical care plan was launched, adding mental disorders to "five diseases and five projects". This prompted the prefectural level to explore a medical system for physical comorbidities in persons with mental disorders. The 2014 revision of the Act on Mental Health and Welfare for the Mentally Disabled included draft guidelines for cooperation with psychiatric liaison teams, enhancement of the functions of general hospital psychiatry departments, and ensuring a system that can appropriately deal with physical comorbidities in psychiatric beds. However, these measures are not fully functional, as the additional fee for management of comorbidities is limited to a narrow range of target diseases, and the requirements for calculation of the admission fee for psychiatric emergencies and comorbidities are too strict. Therefore, the medical system for physical comorbidities in psychiatry is managed independently according to the actual conditions of each region 9)10)14).

Tokyo Metropolitan Matsuzawa Hospital began operating medical psychiatry units, hereafter “MPUs”, in 1977, and has been engaged in medical care for physical comorbidities of psychiatric patients. This paper provides data on the current efforts and challenges in the treatment of physical comorbidities at Tokyo Metropolitan Matsuzawa Hospital.

I. MPUs of Tokyo Metropolitan Matsuzawa Hospital

1. History of Tokyo Metropolitan Matsuzawa Hospital and Structure of MPUs

Tokyo Metropolitan Matsuzawa Hospital is the oldest psychiatric hospital in Japan, established in 1879.

Currently, the hospital has 898 beds. It focuses on acute care, social rehabilitation, treatments for drug addiction, and physical medicine for persons with mental disorders. One of its management principles is to serve as a psychiatric center for citizens of Tokyo while promoting medical cooperation with the community.

The hospital has a long history of medical care for physical comorbidities. According to the annual report of the hospital, a tuberculosis comorbidity ward was established around 1945, and pulmonary tuberculosis was treated under the supervision of a part-time medical physician. For more serious cases, the hospital referred the patients to a local general hospital. However, in many cases, it was difficult for general hospitals to accept patients due to prejudice against mental disorders. In addition, private psychiatric hospitals have been struggling to cope with the increasing number of physical comorbidities due to the aging of hospitalized patients. As a result, it has become widely desired to establish a medical system for physical comorbidities at public medical institutions. Therefore, the hospital decided to deal with the physical comorbidities of psychiatric patients in Tokyo, not limited to in-hospital patients. Tokyo metropolitan government assigned an assistant director of the physical medicine department and full-time medical physicians from each department to the hospital. In 1977, a chronic ward for internal medicine was opened for geriatric patients with mental disorders. In 1978, an acute ward for internal medicine and surgery was opened 6). In 1981, the Tokyo Metropolitan Project for the Mentally Disabled with Physical Comorbidity (commonly known as the "Comorbidity Route") was established. In this system, inpatients with physical comorbidities in psychiatric hospitals could be transferred to hospitals that were capable of treating physical comorbidities. Matsuzawa hospital began to accept these transfers 12)13).

In other words, five metropolitan and public hospitals designated as Type I hospitals, including Matsuzawa hospital, provide medical care for physical comorbidities of psychiatric hospital inpatients during the nighttime and holidays. Type IV hospitals provide psychiatric care after treatment of comorbidities at Type I hospitals. Four private psychiatric hospitals are registered as Type IV hospitals. During weekdays, Type II Hospitals provide emergency care when necessary. Four public and private hospitals, including Matsuzawa hospital, provide this service. Type III hospitals provide medical care when emergency care is not necessary. Type

III hospitals are registered with 22 university hospitals, general hospitals, and public and private psychiatric hospitals, including Type II hospitals. As described above, Matsuzawa hospital is expected to play a wide range of roles as a Type I, II, and III hospital.

The physical departments of Matsuzawa hospital include internal medicine, neurology, gastroenterological surgery, orthopedics, neurosurgery, rehabilitation medicine, anesthesiology, radiology, and dentistry, each staffed by a full-time physician (dentistry is for outpatient care only), and plastic surgery, ophthalmology, otolaryngology, dermatology, gynecology, and urology, each staffed by a part-time physician (except plastic surgery, which is for outpatient care only). There are three wards designated as MPUs, two wards for psychiatric beds (86 beds in total, 41 and 45 beds respectively), and one ward for general beds (45 beds). In addition, there is one ward (45 beds), which has tuberculosis model beds, that was changed to a ward that accepts Coronavirus Disease 2019 (COVID-19) treatment for psychiatric patients in response to the epidemic in 2020 1). This paper discusses the structure and functions of three wards for physical comorbidities, excluding the COVID-19 ward.

These three wards are staffed with one full-time psychiatrist, one part-time psychiatrist, two psychiatric residents, ten medical physicians, two gastroenterological surgeons, two orthopedic surgeons, one neurosurgeon, one plastic surgeon, and one rehabilitation physician. The hospital has a system in which the attending physicians of the physical and psychiatric departments work together to treat each patient. The nurse-to-patient staffing ratio for the MPUs is 1:13, and all of the nursing staff are registered nurses, with no nursing assistants. One full-time and one part-time psychiatric social worker are assigned to the three wards.

2. Demographic Attributes and Health Economic Indicators

In the fiscal year 2019, the total number of newly admitted patients to the MPUs was 1,099 in the hospital. Of these, 596 were males and 503 were females, with an average age of 63.5 years.

The bed utilization rate was 66.3%. The average length of stay was 33.4 days. The cost per patient in the MPUs was 24,600 yen for medical psychiatric beds, 28,694 yen for surgical psychiatric beds, and 30,365 yen for mixed medical-surgical general beds in the fiscal year 2019. It was the second highest after the psychiatric emergency ward group (average 34,236 yen). The cost per patient, excluding basic inpatient charges and meal charges, was 8,383

yen for medical psychiatric beds, 12,365 yen for surgical psychiatric beds, and 11,165 yen for mixed medical-surgical general beds, while it was less than 3,500 yen for other wards in the hospital. These values have remained at similar levels since 2016, when the data were first available. The higher average cost per patient in the MPUs is thought to be due to the higher density of care. However, the average cost per patient in the MPUs is significantly lower than the average cost of approximately 80,000 yen in university hospitals and that of 70,000 yen in general hospitals that treat physical diseases.

Although the cost per patient is high, the MPUs has the lowest profit margin in the hospital due to its high labor cost and expenses. The profit margin of the units in the fiscal year 2019 was -94% to -85%.

3. Details of inpatient diseases

Figure 1 shows the details of mental disorders (ICD-10) of all patients admitted to Matsuzawa's MPUs in the fiscal year 2019. Figure 2 shows the details of physical diseases. Figure 3 and Figure 4 show the combinations of mental disorders and physical diseases. The details of mental disorders were as follows: schizophrenia (F2) accounted for 34%, followed by organic mental disorders (F0) including dementia (18%), disorders due to psychoactive substance use including alcoholism (hereafter, substance-related disorders) (F1, 13%), mood disorders (F3, 7%), and mental retardation (F7, 6%) (Figure 1). The 18% of patients without mental disorders were admitted to the general ward, one of the MPUs. This is because Matsuzawa hospital also provides medical services to the local population without mental disorders.

In the fiscal year 2019, the details of physical diseases were 19% gastroenterological, 15% orthopedic, 13% respiratory, 12% gastroenterological surgery, 6% nephrological, 6% neurosurgical, and 29% others (Figure 2). Others included worsening physical conditions in which physical and mental factors were closely intertwined, such as water intoxication and eating disorders, or conditions in which it was difficult to distinguish between physical and mental symptoms, such as catatonic stupor and lithium intoxication.

In the fiscal year 2019, the details of medical diseases according to psychiatric disorder showed that the largest number of patients had schizophrenia with gastroenterological diseases such as severe constipation and paralytic ileus (67 patients), followed by 60 patients with substance-related disorders who had gastroenterological diseases such as gastrointestinal bleeding and liver cirrhosis, and 50 patients with

schizophrenia who had respiratory diseases such as aspiration pneumonia (Figure 3).

The details of surgical diseases according to mental disorder showed that the majority of requests for surgery for cholelithiasis and hernia in patients without mental disorders came from the Tokyo Metropolitan Tama Medical Center, with 82 patients undergoing the same surgery in the fiscal year 2019 (Figure 4). The next largest number of patients was 64 for orthopedic diseases (fractures) in patients with schizophrenia and 31 for orthopedic diseases (fractures) in patients with organic mental disorders (mainly dementia).

In the fiscal year 2019, the details of the departments in charge were as follows: Internal Medicine 709 (65%), Orthopedics 157 (14%), Gastroenterological surgery 140 (13%), Neurosurgery 71 (6%), and Others 22 (2%). Others included Plastic surgery. The demand for pressure ulcer treatment by plastic surgeons was very high. Pressure ulcer team interventions accounted for 8% of all admissions to the MPUs. Twenty-three plastic surgery procedures were performed, most of which were skin grafts. The total amount of surgical procedures performed was 279 (25%) in the fiscal year 2019.

4. Admission and discharge dynamics

In the fiscal year 2019, 23% of patients were admitted via the "Comorbidity Route" described above, 11% were transferred within the hospital, 10% were accepted by transfer requests from general hospitals and other medical institutions other than psychiatric hospitals (hereafter referred to as the "Not Comorbidity Route"), and 56% were admitted at home or at other facilities (Figure 5). The "Comorbidity Route" led to a return to the psychiatric hospital in 20% of cases, in-hospital transfer in 14%, "Not Comorbidity Route" in 7%, home/facility in 54%, and death in 5% (52 patients).

5. Changes over the years

The total number of newly admitted patients in the MPUs was 807 in the fiscal year 2012, 923 in 2013, 962 in 2014, 1,014 in 2015, 1,129 in 2016, 1,157 in 2017, 1,153 in 2018, and 1,099 in 2019. Since the fiscal year 2016, there have been approximately 1,100 new hospitalizations per year (Figure 6). Looking at trends by age group, the percentage of hospital admissions by those aged 65 and over has not changed significantly since the fiscal year 2012, remaining at around 50%, but the actual number of hospital admissions by those aged 65 and over increased 1.5-fold, from 322 in the fiscal year 2012 to 504 in 2019 (Figure 7). Among the elderly, the number of those aged 75 years and older increased markedly,

accounting for more than 30% of the total since the fiscal year 2018.

The average length of hospital stay was 61.9 days in the fiscal year 2012, 60.1 days in 2013, 56.1 days in 2014, 57.0 days in 2015, 52.7 days in 2016, 45.7 days in 2017, 39.8 days in 2018, and 33.4 days in 2019 (Figure 8).

Bed utilization remained unchanged at 70.0% in the fiscal year 2012, 70.2% in 2013, 65.7% in 2014, 62.0% in 2015, 64.7% in 2016, 57.8% in 2017, 59.3% in 2018, and 66.3% in 2019 (Figure 9).

The physical restraint rate (number of physical restraints during the period ÷ the total number of new admissions during the period × 100) was 37.5% in the fiscal year 2012, 35.7% in 2013, 34.0% in 2014, 25.0% in 2015, 26.0% in 2016, 16.0% in 2017, 20.0% in 2018, 21.0% in 2019, and recently remained near 20% (Figure 10).

II. Discussion

1. Characteristics of the diseases

As shown in Figure 1, the MPUs treats all stages of psychiatric disorders, from acute to chronic. It is difficult to make progress in the treatment of physical diseases without improving psychiatric symptoms. Psychiatric pharmacotherapy skills for patients with serious physical comorbidities are necessary.

As shown in Figures 3 and 7, the number of patients with dementia and schizophrenia at the end of their life is increasing. In the field of internal medicine, there were many cases of recurrent aspiration pneumonia and hospitalization for end-of-life care in patients with dementia and schizophrenia. As shown in Figure 4, in the surgical department, many elderly dementia and schizophrenia patients were hospitalized for bone fractures and gastrointestinal cancer. Compared to the MPUs of a general hospital with an emergency center, there were fewer cases of multiple trauma and poisoning after suicide attempts 4), but Matsuzawa hospital accepted patients with suicide attempts who were transferred to emergency centers of other hospitals and provided them with rehabilitation.

As for changes in the diseases for which the largest number of patients were accepted, respiratory diseases, especially aspiration pneumonia, were the most common among patients with schizophrenia in the fiscal year 2017 and 2018, but in the fiscal year 2019, gastroenterological diseases among patients with schizophrenia became the most common. The reasons for this change are thought to be that a series of new non-stimulant laxatives have become available, expanding the possibilities for medical treatment of ileus, and that a system has been established to promptly transfer

patients with gastroenterological diseases accepted by the department of internal medicine to the department of surgery if they are indicated for surgery, thereby expanding the range of acceptable gastroenterological diseases.

2. Casework

Matsuzawa hospital has a policy of providing rehabilitation and casework that improves life after discharge. It is based on the principle that patients admitted to the MPU are discharged from the MPU. One of the reasons for not transferring to other wards is the difficulty of casework for psychiatric patients with physical comorbidities.

Patients under 65 years of age are expected to use the medical and welfare systems for mental disorders, but these systems are designed for relatively young and physically healthy patients. It is not uncommon for psychiatric patients with physical comorbidities to have difficulty using these systems. On the other hand, the long-term care insurance system is assumed to be used by persons 65 years of age or older, but this law does not assume the presence of mental disorders. Therefore, it is practically difficult to conduct casework for psychiatric patients with serious physical comorbidities in wards that are not accustomed to handling physical comorbidities. Inadequate casework has led to re-hospitalization due to deterioration of the physical condition immediately after discharge. Psychiatrists and psychiatric social workers set treatment goals from the stage of admission, collaborate with the physical physicians, and initiate coordination with related organizations. The result of this proactive casework is a reduction in the average length of hospital stay (Figure 8).

Casework is a common issue for other hospital wards with physical comorbidities. It is difficult to secure a discharge destination. In urban areas such as Tokyo and Kanagawa Prefecture, the principle of returning to the requesting hospital after completion of physical treatment has been established due to the development of the medical system for physical comorbidities 11)14). However, in rural areas with limited medical resources, coordination among each hospital is necessary 9).

3. Bed Utilization Rate

As shown in Figure 9, the bed utilization rate remained around 65%. This is because the number of hospitalized patients has increased, but the average length of hospital stays has decreased. As a result, the turnover rate of hospital beds increased, so the bed utilization rate did not increase. Other factors include problems with the ward structure and nursing staffing standards. The MPUs have four ICU beds, but there are not enough nurses to

operate the ICU beds in the surgical ward.

The nurse-to-patient staffing ratio in the MPUs is 1:13. It is less than the ratio of 1:7 and 1:10 that have been introduced in acute care general hospitals, although nurses in MPUs need to deal with psychiatric symptoms in addition to physical comorbidities. In MPUs, it is often difficult for patients to understand and cooperate with the meaning of treatment due to psychiatric symptoms. Falls from the bed, fractures, difficulties in maintaining rest after surgery, and self-extraction of intravenous routes often occur. A study of the relationship between the number of incident reports and the number of patients in Matsuzawa's MPUs showed that the number of incident reports was significantly higher when the nurse-to-patient staffing ratio was higher than 1:7 compared to when the ratio was lower than 1:7 ($P = 0.05$). A low nurse-to-patient staffing ratio in medical care for physical comorbidities is a major obstacle not only in Matsuzawa's MPUs, but also in other MPUs 5)8).

4. Decision-making support

In the fiscal year 2019, 5% (52 patients) of all admissions were for end-of-life care in the MPUs (Figure 5). At the end of life, the patient's will should be respected, no matter how severe the mental disorder. Matsuzawa's MPUs aim to provide medical care as it should be practiced, in which patients themselves participate in medical treatment for physical comorbidities and make their own medical decisions 3). How should the patient's will regarding treatment for physical comorbidities be handled under involuntary psychiatric hospitalization, where the patient is judged to be incapable of consenting to inpatient treatment?

First, in order to enable the patient to participate in treatment, it is necessary to create the best possible mental state for the patient through psychiatric treatment. Then, decision-making support should be provided while adjusting the patient's wishes, physical symptoms, psychiatric symptoms, and social environment. For this purpose, the MPUs actively provides opportunities to discuss with the patient, family members, ward staff, physical physicians, and psychiatrists.

5. Cooperation with psychiatric hospitals

In order to deepen cooperation with the psychiatric hospitals from which the "Comorbidity Route" is requested, a case review meeting is held twice a year between the departments of physical medicine and psychiatry. Each meeting is attended by 30-to-50 people from various professions working in psychiatric hospitals. The topics have included respiratory disease in schizophrenic patients, terminal care of

dementia patients, ileus and laxatives, prevention and early treatment of pressure ulcers, and lithium poisoning. Medical care of physical comorbidities is only possible through cooperation between the requesting hospital and the receiving hospital. Regular opportunities for exchanges are expected to strengthen cooperation.

Conclusion

In the midst of the demand for measures to deal with physical comorbidities among psychiatric patients, this paper has described the approaches and issues in the treatment of physical comorbidities at Tokyo Metropolitan Matsuzawa Hospital. Psychiatric patients naturally have the right to receive appropriate treatment for physical comorbidities. In order to realize this right, it is necessary for the government, local communities, and hospitals to cooperate in establishing a full medical system for physical comorbidities.

There are no conflicts of interest to disclose in connection with this paper.

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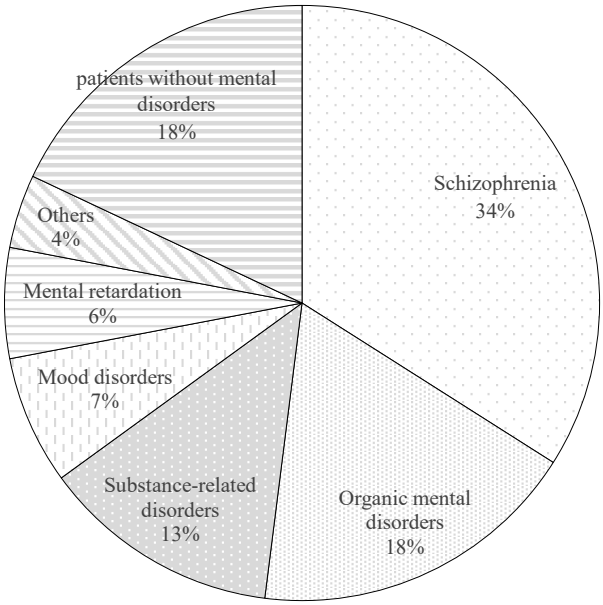

Figure 1. Details of mental disorders among patients admitted to the MPUs in the fiscal year 2019 (n=1,099)

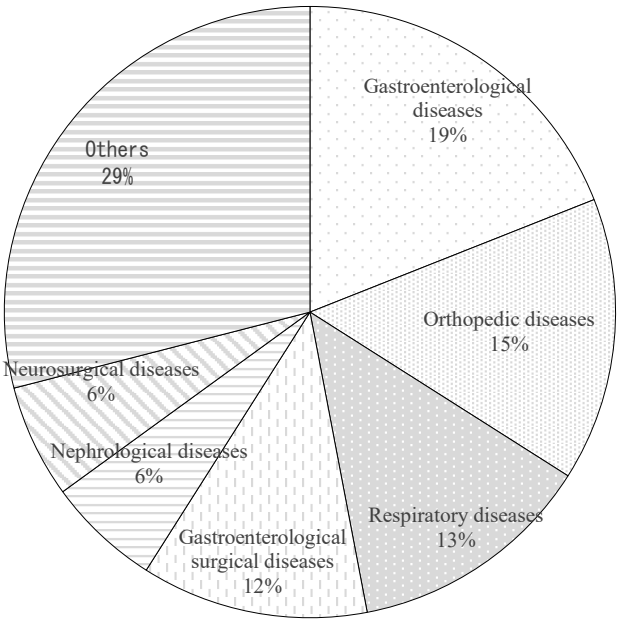

Figure 2. Details of physical diseases among patients admitted to the MPUs in the fiscal year 2019 (n=1,099)

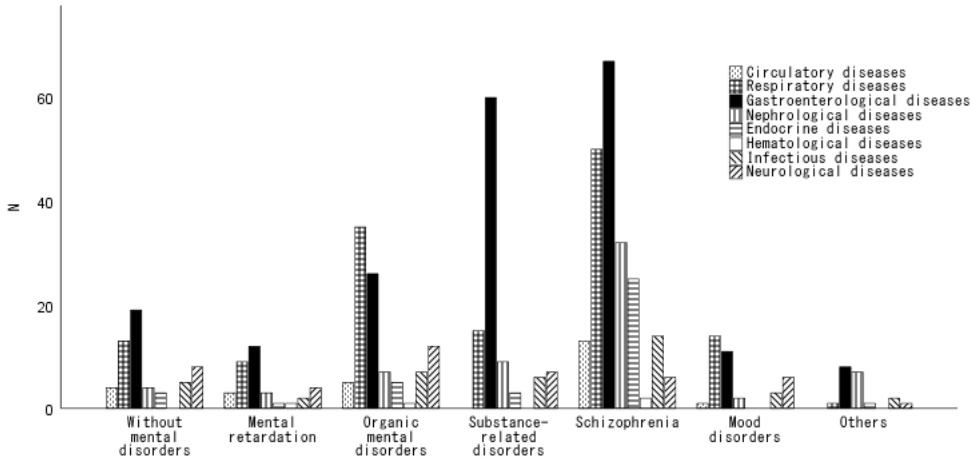

Figure 3. Combination of mental disorders and medical diseases among patients admitted to the MPU in the fiscal year 2019 (n=709)

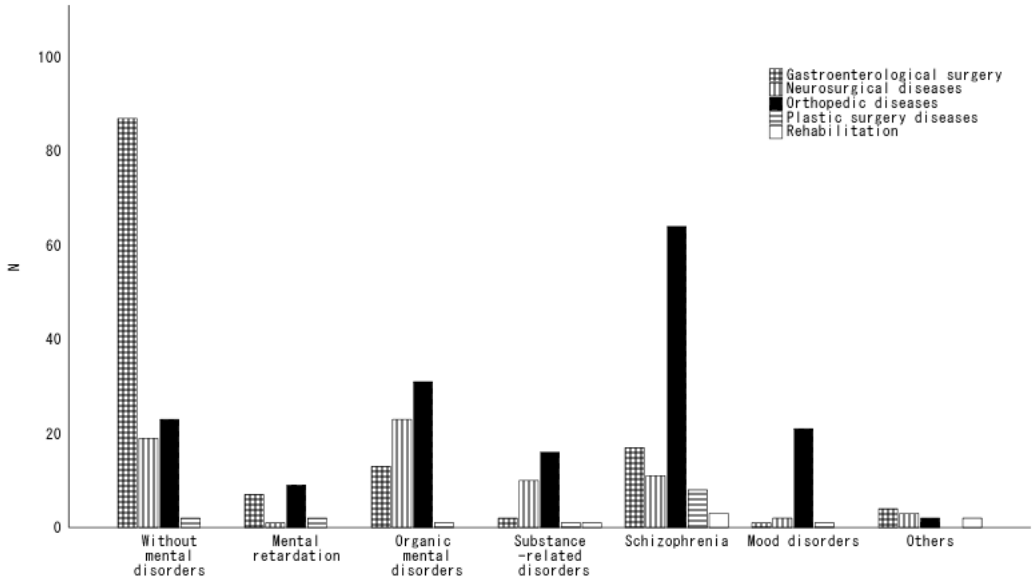

Figure 4. Combination of mental disorders and surgical diseases among patients admitted to the MPU in the fiscal year 2019 (n=390)

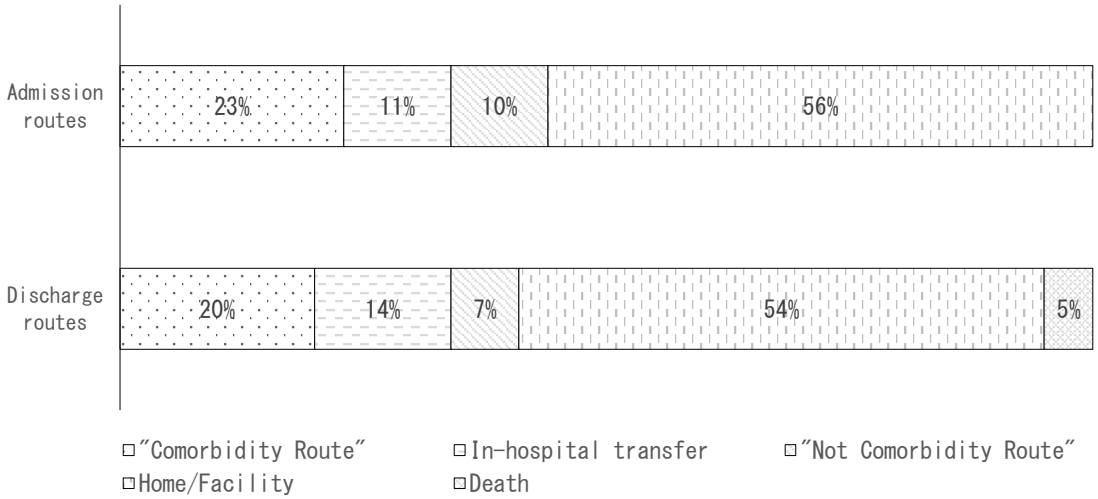

Figure 5. Admission and discharge routes for the MPUs in the fiscal year 2019 (n=1,099)

”Comorbidity Route”: the route in which patients who developed physical comorbidities while hospitalized in a psychiatric hospital were accepted. This route is intermediated by the Tokyo Metropolitan Government. “Not Comorbidity Route”: the route for patients who are accepted by transfer requests from medical institutions other than psychiatric hospitals, such as general hospitals.

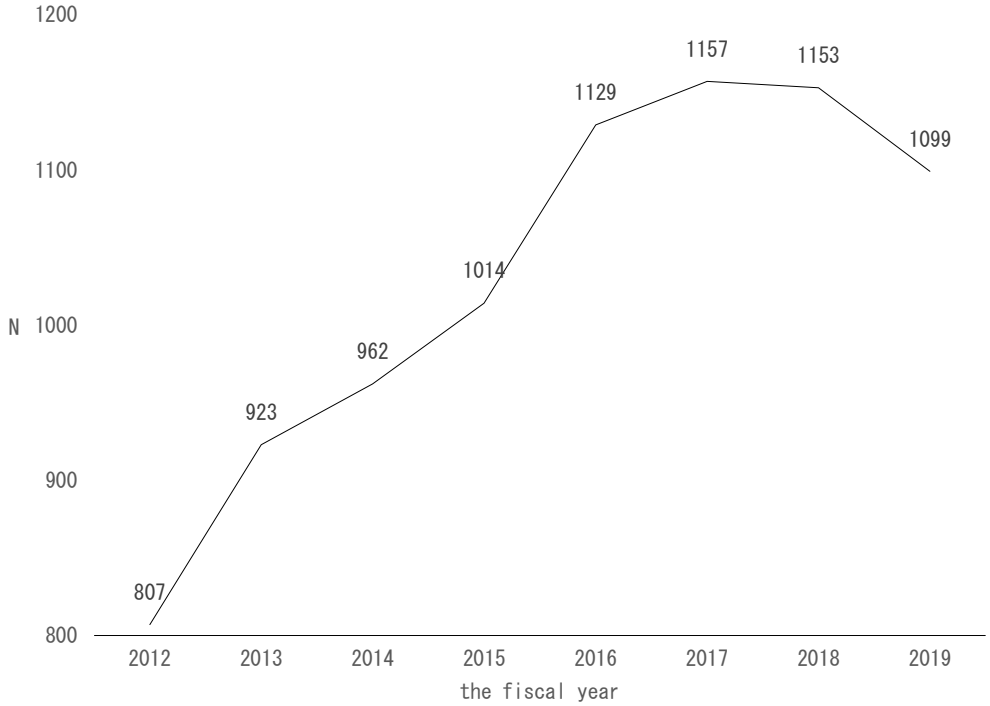

Figure 6. Number of new admissions to the MPUs between fiscal years 2012 to 2019

The total number of new admissions in the MPUs has increased over the years, with approximately 1,100 new admissions per year since the fiscal year 2016.

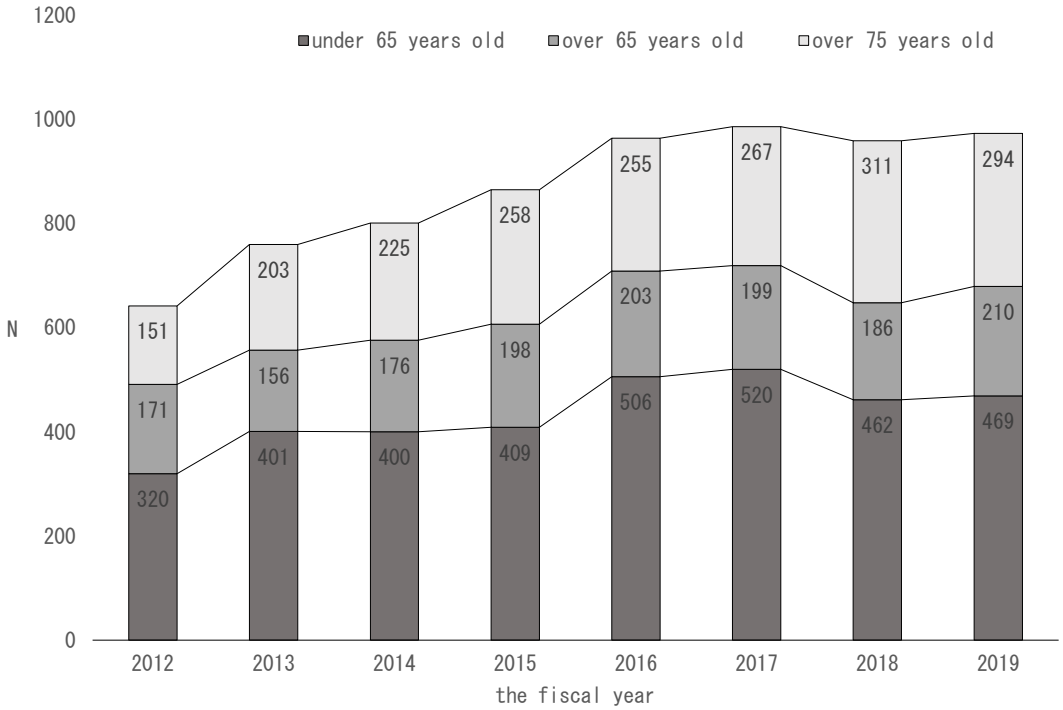

Figure 7. Changes in the MPUs by age group between fiscal years 2012 to 2019 (excluding in-hospital transfers)

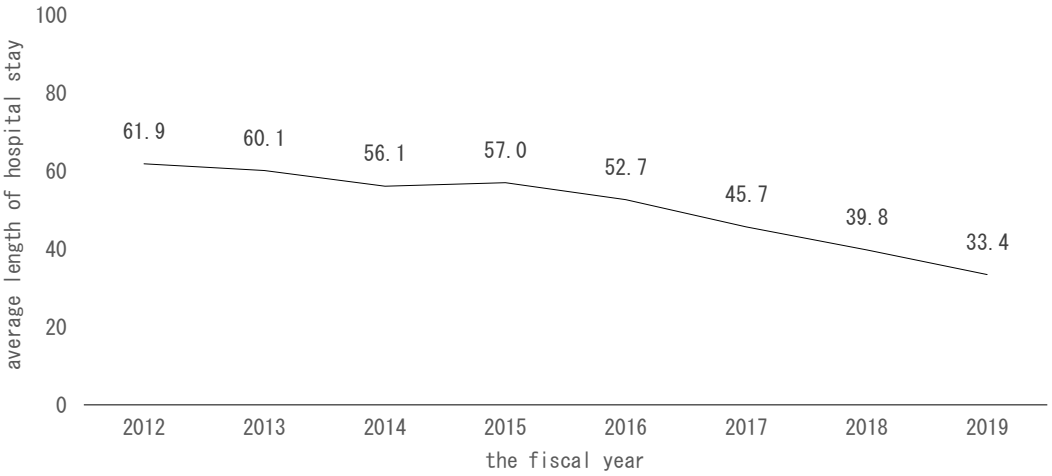

Figure 8. Changes in the average length of hospital stay in the MPUs between fiscal years 2012 to 2019

The average length of hospital stay decreased over the years.

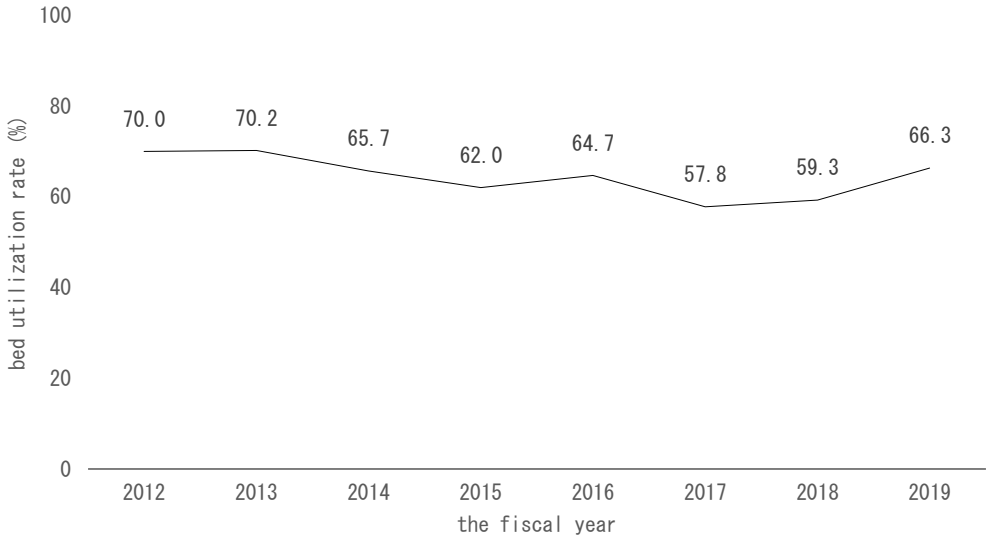

Figure 9. Changes in the bed utilization rate in the MPUs between fiscal years 2012 to 2019

The bed utilization rate remained at around 65%.

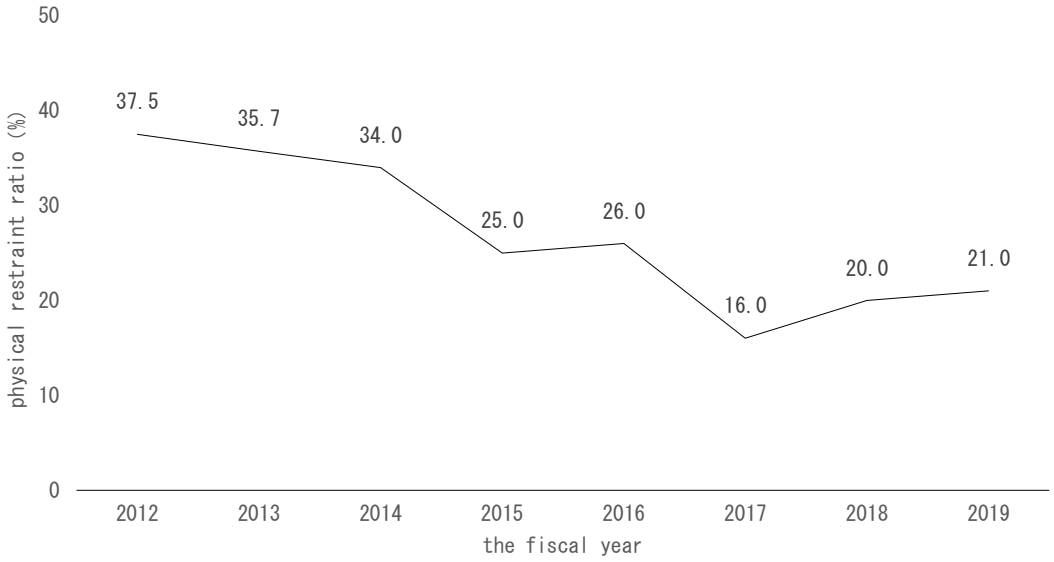

Figure 10. Changes in the physical restraint ratio in the MPUs between fiscal years 2012 to 2019

The physical restraint rate (number of physical restraints during the period ÷ total number of new admissions during the period × 100) has decreased over the years and has recently remained at approximately 20%.