

General Medical Claims for Behavioral Health Patients in Japan

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The interaction of behavioral health (BH) and general medical spending has been evaluated in several countries.¹⁻⁵ Studies consistently show increased general medical service use and cost for those with BH disorders.³⁻⁵ Further, 86.8% of the cost for total health care in US patients with medical and BH comorbidities has been estimated to be for medical services.⁵ In patients covered by commercial insurance, the total costs of US patients with medical and BH comorbidities are 2.6 times higher than for those without BH comorbidities.⁵ In the United States, the reasons for higher medical cost among BH patients might be the nation's health care system, which includes disincentives to use BH care that were introduced by managed BH insurance practices^{6,7}; difficulty in accessing BH services⁸; and/or loss of BH coverage. Cost shifting from BH to medical health was shown by Rosenheck et al⁹ several years ago in a study demonstrating that the introduction of BH segregated from medical services reduced BH service costs but concurrently increased medical health care costs, such that the total annual cost of health care was actually nearly \$130 more per patient after the transformation.⁹

Little is known about how BH disorders affect health care costs in Japan. The Japanese health system is very different from that of the United States. Health care services in Japan are delivered by mandatory public health systems extending appropriate health care anywhere at any time. Japanese citizens have to be covered by the occupation-based, municipality-based, or elderly medical insurance systems. Japanese health insurance enrollees are guaranteed by law to have the benefit of free access. People can select and seek health care from physicians in any medical discipline, including BH providers. However, there are still not enough general medical health care facilities that provide either inpatient or outpatient psychiatric services in the medical setting. Only 23.4% of general hospitals provided psychiatric services in 2016.¹⁰ In Japan, most BH patients need to visit stand-alone BH clinics/hospitals, although palliative care teams and some emergency medical treatment teams include BH specialists.

As in other countries, only a few systematic collaborative care programs exist in Japan. Furthermore, BH and medical care are

ABSTRACT

OBJECTIVES: To evaluate the magnitude of general medical claims expenditures (ie, medical service use) for individuals who use and do not use behavioral health (BH) services in the Japanese free-access medical insurance system to determine if BH patients use substantially more health services, as has consistently been reported in the United States.

STUDY DESIGN: Retrospective comparison of Japanese occupation-based total health services use for enrollees with and without comorbid BH conditions.

METHODS: The study used a health insurance claims database for more than 3 million enrollees in Japan. All health plan enrollees (18 years and older) who had at least 1 diagnosis of a chronic medical condition were included in the study (N = 192,613). Measurements were total claims expenditures for BH and medical services.

RESULTS: The proportion of enrollees using BH services was 14.3%. BH service users accounted for 21.1% of total health service spending. Annual total costs of BH service users were 1.6 times higher than those of non-BH users. Annual medical costs of BH users were 1.3 times higher than those of non-BH users.

CONCLUSIONS: The results of this Japanese cohort study show that patients with concurrent BH conditions and chronic medical illnesses have substantially lower total health care costs than numerous studies have demonstrated in US populations. This is perhaps in part due to the integration of medical and BH claims payment and care delivery in Japan, an approach that the US health system may wish to consider testing.

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separated in many ways. Only BH is under the control of the Social Welfare and War Victims' Relief Bureau. Other medical services are under the control of the Health Policy Bureau in the Ministry of Health, Labour and Welfare. Nonetheless, all health services are paid from a single total health budget designed to cover all needed health services.

The purpose of this study is to evaluate the magnitude of general medical claims expenditures for individuals with chronic medical illnesses who use or do not use BH services in the Japanese free-access medical insurance system.

METHODS

This study is a retrospective population comparison of Japanese occupation-based public health insurance enrollees. It was approved by the ethics committee of Nippon Medical School Mushikosugi Hospital.

Database

The health insurance claims database developed by the Japanese Medical Data Center (JMDC) was used for this study. The JMDC collects care delivery, including both medical and BH, and pharmacy claims from more than 50 occupation-based public health insurance agencies for corporate employees and their family members. The agencies represent the large corporation-based insurance system (for corporations with >700 workers). The members in these agencies tend to have higher incomes than the members of smaller company-based or public service-based insurance systems. The database used includes 3,041,835 recipients aged 0 to 74 years between April 2014 and June 2015, representing 2.0% of the Japanese population.

Study Population

We included all health plan enrollees 18 years and older who visited a health care facility during the 3-month enrollment period (between April 2014 and June 2014); all had at least 1 diagnosis of a chronic medical condition and were enrolled in the database during the entire study period (between April 2014 and June 2015). We selected those who had chronic medical conditions in this study because they were most likely to be enrolled in the database during the entire study period.

Definitions

Chronic medical conditions. Chronic medical conditions were defined by the Charlson Comorbidity Index¹¹ and included myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease, chronic pulmonary disease, connective tissue disease, peptic ulcer disease, mild liver disease, diabetes without end-organ damage, diabetes with end-organ damage,

TAKEAWAY POINTS

This study evaluated the magnitude of general medical claims expenditures for patients with chronic medical illnesses who use and do not use behavioral health (BH) services in the Japanese medical insurance system.

- ▶ Annual total and medical costs of BH service users were 1.6 times and 1.3 times higher, respectively, than those of non-BH service users.
- ▶ Patients with concurrent BH conditions and chronic medical illnesses have substantially lower total health care costs than numerous studies have demonstrated in US populations.
- ▶ This could be due, at least in part, to the integration of medical and BH claims payment in Japan.

hemiplegia, moderate or severe renal disease, tumor without metastasis, moderate or severe liver disease, and metastatic solid tumor. Codes for suspected conditions were excluded. HIV status was not registered in this database for privacy protection. Dementia was excluded from chronic medical conditions because dementia was classified as a BH diagnosis in this study.

BH users. Submitted claims with *International Classification of Disease, Tenth Revision* codes of F and G30-31 (dementia) were classified as BH conditions. The BH users were defined as health plan enrollees who had at least 1 BH code and at least 1 chronic condition during the enrollment period. BH diagnoses were also classified by the Global Burden of Disease Study¹² and dementia. The non-BH users were defined as those who did not have a BH code with their chronic condition during the enrollment period.

Claims expenditures. Total health care costs between July 1, 2014, and June 30, 2015, were calculated for each patient based on health and pharmacy claims. Costs were divided into BH costs and non-BH costs. BH costs were defined as costs of claims for psychiatric outpatient service or psychiatric hospitalization. The values were converted from yen to US\$ based on the average yen/US\$ rates during the study period (1 US\$ = 114.60 yen).

RESULTS

The characteristics of the enrollees are described in **Table 1**. A total of 192,613 health insurance enrollees fulfilled the inclusion criteria of this study. The proportion of enrollees using BH services in this chronically medically ill population was 14.3%. Enrollees with BH service use experienced more chronic medical conditions than those without (mean number of conditions, 1.4 vs 1.3, respectively; $P < .001$). In this database, BH service users accounted for 21.1% of total health service spending in the subsequent year (total spending, \$747,965,785; BH user spending, \$158,060,542 [21.1% of total]). Annual costs of total health care services were 1.6 times higher in BH users than those with no BH use (**Table 2**). Annual medical costs (excluding BH costs) for BH users were 1.3 times higher than those of non-BH users.

Table 3 shows the mean claims expenditures by medical condition with and without BH comorbidity. Total medical and BH claims for the BH patients were consistently higher than for the patients without BH disorders with any chronic medical condition except for

TABLE 1. Characteristics of the Enrollees

	Total		Non-BH use		BH use	
	n	%	n	%	n	%
	192,613		164,986	85.7	27,627	14.3
Mean age in years	49.38		49.30		49.89	
Age group in years						
18-44	63,883	33.2	55,332	33.5	8551	31.0
45-64	108,872	56.5	92,979	56.4	15,893	57.5
65-74	19,858	10.3	16,675	10.1	3183	11.5
Gender, male	105,351	54.7	92,500	56.1	12,851	46.5
Chronic medical conditions						
Myocardial infarction	4176	2.2	3701	2.2	475	1.7
Congestive heart failure	17,587	9.1	14,769	9.0	2818	10.2
Peripheral vascular disease	5280	2.7	4247	2.6	1033	3.7
Cerebrovascular disease	23,414	12.2	19,053	11.5	4361	15.8
Chronic pulmonary disease	67,360	35.0	58,874	35.7	8486	30.7
Connective tissue disease	11,521	6.0	9894	6.0	1627	5.9
Peptic ulcer disease	58,183	30.2	46,578	28.2	11,605	42.0
Mild liver disease	11,051	5.7	8959	5.4	2092	7.6
Diabetes without end-organ damage	3752	1.9	3248	2.0	504	1.8
Diabetes with end-organ damage	16,251	8.4	14,479	8.8	1772	6.4
Hemiplegia	1016	0.5	667	0.4	349	1.3
Moderate or severe renal disease	7168	3.7	6274	3.8	894	3.2
Tumor without metastasis	19,596	10.2	17,089	10.4	2507	9.1
Moderate or severe liver disease	420	0.2	308	0.2	112	0.4
Metastatic solid tumor	2676	1.4	2231	1.4	445	1.6
Behavioral health conditions						
Substance use disorder					413	1.5
Schizophrenia					3454	12.5
Bipolar disorder					1922	7.0
Monopolar depression					12,496	45.2
Anxiety disorder					9853	35.7
Eating disorder					374	1.4
Pervasive development disorder					112	0.4
Conduct disorder					128	0.5
Intellectual disability					235	0.9
Dementia					500	1.8
Others					11,472	41.5

TABLE 2. Annual Mean Per-Patient Claims Expenditures (in US\$) for Medical and BH Services Among the BH Service Use and No BH Service Use Groups

	Mean medical claims	Mean BH claims	Mean total
No BH service use (n=164,986)	3561.63	13.86	3575.49
BH service use (n=27,627)	4750.68	970.56	5721.23

BH, behavioral health.

those with moderate or severe liver disease. BH patients with myocardial infarction, diabetes, chronic pulmonary disease, cerebrovascular disease, and renal disease had the highest differences in total medical and BH claims cost.

Among BH users, 16,408 (59.4%) did not receive BH services during the follow-up period. **Table 4** shows the mean claims expenditures of BH users who received and did not receive BH services during the follow-up period.

Among the non-BH group, 2519 of 164,986 (1.5%) used BH services during the study period. We could not assess when they used BH services in this database. This 1.5% of patients had 27.5% more total costs (\$4538.60) than those who did not use BH services (\$3560.55). There were no significant differences between the 2 groups in their medical claims (\$3630.97 vs \$3560.55).

DISCUSSION

Study Limitations

Before further discussion of our results, it is important to acknowledge important methodological limitations of this study. The enrollment period of this study was 3 months to differentiate BH users from non-BH users among those with chronic medical illnesses. As a result, only 14.3% of our chronically ill population had a BH condition. This prevalence is much lower than in the United States, where 30% to 43% of those with chronic medical conditions were identified as having a BH comorbidity.¹³ There are several possible explanations for this result. If the period designated for BH claims in patients had been longer (eg, a year, as in most non-Japanese studies), the prevalence rates might have increased in those with chronic medical conditions. Also, the prevalence of BH disorders varies among countries. In fact, the World Health Organization's mental health survey suggests that lifetime prevalence of BH disorders in Japan is lower than for those in the United States (18.0% vs 47.4%).¹⁴ Our lower prevalence finding, however, is consistent with the results of an annual prevalence analysis of claims in the US health care system by Melek et al.⁵ They indicate that the presence of BH conditions in the general US population is close to 16% when using claims data alone.

Another potentially important limitation of this study is that it included only large companies' occupation-based insurance data. If municipality-based insurance, elderly medical insurance, or the public assistance program support for the remaining population

TABLE 3. Mean Claims Expenditures (in US\$) by Medical Condition and BH Comorbidity

	No BH (n = 164,986)				BH (n = 27,627)				Δ in medical claims (%) ^a	Δ in total (%) ^b
	n	Medical claims	BH claims	Total	n	Medical claims	BH claims	Total		
Myocardial infarction	3701	5770.11	17.63	5787.73	475	8644.28	924.31	9568.59	149.8	165.3
Congestive heart failure	14,769	6792.99	20.39	6813.37	2818	8812.13	955.91	9768.04	129.7	143.4
Peripheral vascular disease	4247	4600.97	12.88	4613.85	1033	5075.88	847.89	5923.77	110.3	128.4
Cerebrovascular disease	19,053	4429.20	12.01	4441.21	4361	6338.74	686.18	7024.92	143.1	158.2
Chronic pulmonary disease	58,874	2108.72	13.19	2121.91	8486	3966.08	852.37	4818.45	188.1	227.1
Connective tissue disease	9894	5950.09	15.60	5965.69	1627	7489.51	894.73	8384.24	125.9	140.5
Peptic ulcer disease	46,578	3882.67	19.00	3901.67	11,605	4889.01	1024.93	5913.94	125.9	151.6
Mild liver disease	8959	3932.55	16.58	3949.13	2092	4907.24	1435.86	6343.10	124.8	160.6
Diabetes without end-organ damage	3248	7454.93	25.00	7479.93	504	10,339.70	1312.13	11,651.83	138.7	155.8
Diabetes with end-organ damage	14,479	5458.54	13.01	5471.54	1772	7905.99	983.31	8889.30	144.8	162.5
Hemiplegia	667	7855.83	10.97	7866.80	349	11,760.62	516.95	12,277.57	149.7	156.1
Moderate or severe renal disease	6274	13,572.63	29.43	13,602.06	894	19,288.87	1156.41	20,445.28	142.1	150.3
Tumor without metastasis	17,089	7083.82	16.48	7100.31	2507	9369.00	984.89	10,353.89	132.3	145.8
Moderate or severe liver disease	308	10,910.69	27.50	10,938.19	112	8337.61	1302.84	9640.45	76.4	88.1
Metastatic solid tumor	2231	15,247.88	45.97	15,293.85	445	18,255.35	1241.53	19,496.88	119.7	127.5

BH, behavioral health.

^aMedical claims in BH divided by medical claims in non-BH.

^bTotal claims in BH divided by total claims in non-BH.

was included, all of which often include patients with higher BH needs,⁵ the percentage of those with chronic medical illness and with comorbid BH conditions may have been higher.

Further, care-seeking patterns between Japan and the United States may differ. For example, regarding chest pain, 1 study reported that those in the United States are more likely to seek care at an emergency department and to seek care immediately.¹⁵ In BH, it has been reported that the proportion of those who received treatment for mental disorders in Japan was less than half compared with other high-income countries.¹⁶ It has been suggested that low perceived need in Japanese populations is a major reason for not seeking care.¹⁷

Japanese and US Health System Differences

There are also several important differences between the Japanese and the US health care systems. First, funding for services delivered in the BH and medical settings comes from a common health fund in Japan, whereas funding for BH services in the United States necessarily comes from independent medical and BH payers, even when a medical insurance company “owns” payment for the delivery of BH services. When BH service delivery is “owned” by a medical insurance company, BH services are most often still paid through a totally separate internal funding stream and are delivered in independent and cost-competing BH care settings. This is called “carved-in” BH payment in the US insurance industry.

The alternative is for an independently owned BH insurance company, such as Beacon Health Options or Magellan Behavioral Health, to subcontract to provide BH care separately for health care

TABLE 4. Mean Claims Expenditures (in US\$) of BH Groups Who Did and Did Not Receive BH Services During the Follow-up Period

	Mean medical claims	Mean BH claims	Mean total
No BH service follow-up (n = 16,408)	5764.53	0	5764.53
BH service follow-up (n = 11,219)	3267.90	2380.01	5657.91

BH, behavioral health.

purchasers, such as employers or government agencies. This is called a “carved-out” BH payment system. Regardless of whether a carved-in or carved-out system is used, access to and coordination of medical and BH services and communication among practitioners is significantly inhibited in the US system.

Another difference between the Japanese and the US health systems is that primary care and specialty medical practitioners in the United States manage half or more of BH care for adults and children without the help of BH practitioners.^{13,18-20} Further, the majority of psychotropic medications are prescribed by non-BH providers, often without a BH condition listed in the medical record.²¹ In fact, only about 10% of patients treated in the primary care sector receive evidence-based care.²² In Japan, approximately 70% of antidepressants are prescribed by BH specialists.²³ Furthermore, any treatment by psychiatrists and/or a psychiatric unit is paid by “medical” payers, who are also responsible for paying for all other health care services.

Therefore, basic medical treatment is provided even in stand-alone psychiatric facilities in Japan. Technically advanced medical

treatment can also be performed in stand-alone psychiatric facilities, although it is usually not performed there because specialized “clinical” capabilities are often necessary. Because the medical and behavioral systems are financially connected (ie, paid from 1 funding stream), it is not difficult to send patients who need psychiatric services to medical specialty settings for these advanced medical services. “Payer problems” do not challenge the ability to get needed care in Japan. These differences likely have an impact on our results.

Comparative Japanese and US Health Care Service Use

To our knowledge, few studies have assessed the interaction of BH and general medical costs in the Japanese medical system. This study showed that employees and family members with BH conditions, despite constituting only 14.3% of the total population studied, accounted for 21.3% of total claims expenditures. In part, this may be due to the higher frequency of chronic medical conditions in those with BH comorbidity (ie, 1.4 vs 1.3) in Japan. BH patients accounted for 60% higher annual claims. Although this amount is substantially lower than that for commercially insured patients in the United States, where non-chronically ill BH patient total health claims are 268% higher than those of non-chronically ill non-BH patients, 83% of these additional costs were used for medical claims expenditures, not BH.⁵ These results show the impact that BH comorbidity has on the total cost of care for chronically ill patients in Japan when a single-payer system provides services. Further, patients with some chronic illnesses (eg, post myocardial infarction, diabetes with and without complications, chronic pulmonary disease, cerebrovascular disease, renal disease) have a higher risk of medical service use than those with other chronic conditions; however, all patients with chronic medical illnesses demonstrated higher total health care costs when concurrent BH conditions were present except for those with moderate to severe liver disease.

This study demonstrates several interesting findings. In the United States, medical costs for treating patients with comorbid medical and BH conditions are 2 to 4 times higher than for those who do not have comorbid BH conditions.⁴ In Japan, medical costs per patient with at least 1 chronic medical illness were only 1.3 times higher in patients with a BH condition, suggesting that they were less costly compared with non-chronically ill medical patients in the United States. Nevertheless, they still used a significantly higher number of medical services than in patients without a BH comorbidity. Although other factors could be involved, such as the increased presence of chronic medical illnesses in BH patients, the Japanese system’s integration of medical and BH payment could be an important cost containment model for the US health care system to consider.

Commercially insured Japanese BH service users with at least 1 chronic medical illness accounted for 21.1% of total health care spending in this study. This number is much smaller than in the United States, where they account for 34% of total health care spending.^{4,5} Total health costs are still 60% higher than in those without a BH comorbidity. This may be due to the fact that

reimbursement for health care in Japan is less than in the United States. In fact, the United States spends approximately twice as much as all other high-income countries on medical care despite the fact that utilization rates in the United States are largely similar to those in other countries.²⁴ To give an example of a cause of higher US spending, prices of such typical pharmaceuticals as medications for diabetes, asthma, and rheumatoid arthritis are 3 times higher in the United States than in Japan.²⁴

Many studies show that patients at the interface of behavioral and medical health comorbidity are diagnosed and treated well by using integrated care approaches, such as collaborative care.²⁵⁻²⁹ Collaborative care, however, is only one model of medical and BH integration, albeit one that has been well studied. Other models include proactive psychiatric consultation, integrated case management, delirium prevention and treatment programs, and medication-assisted substance abuse treatment. They also show significant returns on investment¹³ when properly deployed. Further, integrated care approaches have shown robust evidence concerning the cost-effectiveness and cost-reduction of total care.^{13,30-34} The Japanese system, in which payers use a single pool of money for all health services, appears to have significant advantages over that used in the United States because all care, including medical and BH, can be delivered in all parts of the health system separately or together without limitation. In some emergency departments, psychiatrists are members of the medical care emergency treatment team and provide BH care the way that other medical practitioners do, without administrative and financial restrictions.³⁵

Among BH users at enrollment, 59% did not receive BH services during the follow-up period, but this BH group remained more expensive than the non-BH group. BH users who did not use BH services during the follow-up period had total health care expenses that were slightly higher than continuing BH users. This mirrors the US data from Rosenheck et al showing cost shifting from BH to medical health.⁹

Among the non-BH group, 1.5% used BH services during the study period. We could not assess when they used BH services during the year in this database. These patients, however, had 27.5% higher total costs than those who did not use BH services.

CONCLUSIONS

To date, US policy makers and health care providers have not chosen to try to access the advantages that are potentially present within an evidence-based single payment system for both medical and BH services, like the one used in Japan. Although this study does not include direct comparative US employee claims data, those found in the 2018 analyses performed by Melek et al¹⁵ closely mirror our results. Comparing our findings suggests that by integrating medical and BH claims, the shifting of costs from BH to medical claims (as demonstrated by Rosenheck et al⁹ in 1999) may be reversed by introducing a single-payer system. Certainly, this cross-national comparison of claims use in Japan’s health system with Melek and

colleagues' report⁵ of claims use in the US system suggests that the United States could benefit from a better understanding of the total cost of health care if medical and BH services were paid from a single payer source, which allowed location-wide integration of medical and BH service delivery.

Certainly, there are discrete locations in the United States in which medical and BH budgets have been consolidated, such as in 16 states for patients covered by Medicaid,³⁶ but practitioners and health systems have not integrated medical and BH services for these patients because other payers in their geographic care delivery locations pay only for segregated service delivery. Thus, delivery systems are unwilling to change to integrated service delivery approaches because they need to be paid for all delivered services by all payers, rather than just a subset, for obvious financial reasons. Retaining segregated delivery of BH services for all is the only way to accomplish this; however, the choice of this option forfeits potentially improved health outcomes and cost savings. ■

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