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**MENTAL
HEALTH
FOR ALL**

GREATER INVESTMENT
GREATER ACCESS

**WORLD MENTAL
HEALTH DAY 2020**

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Announcements

World Mental Health Day, Mental Health for All — October 10, 2020

Lin Lu[#]

World Mental Health Day was initiated in 1992 by the World Federation for Mental Health (WFMH), a global mental health organization with members and contacts in more than 150 countries, and is celebrated every year to educate people on mental health, raise awareness for mental illnesses, and reduce associated stigma. It is supported by the World Health Organization (WHO) based on its strong relationships with ministries of health and civil society organizations across the globe.

Mental health refers to cognitive, behavioral, and emotional wellbeing and is important at every stage of life from childhood and adolescence through adulthood to old age. However, mental health issues have increased significantly over the last several decades as the burden of mental disorders grows with significant impacts on health and major social and economic consequences. With over 970.8 million people suffering from mental disorders worldwide, mental disorders have consistently accounted for more than 14% of age-standardized years lived with disability for the last 30 years (1), and the prevalence reached 22.1% in conflict-affected populations (2). With unprecedented economic development and social change in the past 3 decades in China, Chinese people are experiencing great psychological pressure and stress and have a lifetime prevalence of mental disorders at 16.6% (3).

Examples of mental illness include depressive disorders, anxiety disorders, schizophrenia, eating disorders, autism spectrum disorders, etc., and they are generally characterized by a combination of abnormal thoughts, perceptions, emotions, behaviors, and social relationships. Untreated mental illness causes emotional, behavioral, and physical health problems and can even result in severe or fatal outcomes like suicide. According to the WHO, 1 person dies by suicide every 40 seconds in the world, and most suicides are related to mental illness. Thus, the World Mental Health Day 2019 focused on suicide prevention with the theme “Mental Health Promotion and Suicide Prevention”.

In 2020, people of the world are facing the unprecedented impact of the coronavirus disease 2019 (COVID-19) pandemic, which has caused serious threats to physical and mental health. As the world struggles to bring the pandemic under control, social distancing and emotional distress have become widespread. Mental health symptoms including depression, anxiety, insomnia, and acute stress have increased during the COVID-19 pandemic among the general population, especially among infected individuals, people with suspected infection, and people who might have had contact with COVID-19 patients (4–5).

The theme of World Mental Health Day 2020 is “Mental Health for All: Greater Investment — Greater Access.” Under the challenges brought by the COVID-19 pandemic to mental health, guaranteeing health equity for everyone is critically important. The Chinese government has implemented a series of rapid and comprehensive public health emergency interventions to strengthen the mental healthcare system and increase the availabilities of mental healthcare services. We hope that the World Mental Health Day 2020 will be accompanied by united efforts from countries, societies, governments, and organizations to achieve improvements in mental health equity and accessibility for all.

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[#] Corresponding author: Lin Lu, linlu@bjmu.edu.cn.

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Lin Lu, M.D., Ph.D.
Academician, Chinese Academy of Sciences
Director/Professor, Peking University Sixth Hospital/Institute of Mental Health, Peking University
Director/Professor, National Clinical Research Center for Mental Disorders
Director/Professor, National Center for Mental Health, China CDC

Vital Surveillances

Community-Based Management and Treatment Services for Psychosis — China, 2019

Miaomiao Zhao¹; Ning Ma^{1,†}; Xun Wang¹; Xiamin Wu¹; Wufang Zhang¹; Runzi Chen¹; Yulu Wang¹; Lili Guan¹; Hong Ma¹; Xin Yu¹; Lin Lu¹

ABSTRACT

Introduction: Community-based services for psychosis are an important part of mental health services in China. We analyzed community-based follow-up and treatment services for psychosis in China in 2019 to provide evidence for policymaking and services delivering.

Methods: Data from the National Information System for Psychosis were used to analyze usage of the information system and the registration, management, and treatment situation of patients with psychosis in China in 2019 and compared the results of 2019 with that of 2018.

Results: In 2019, 100% of cities and counties used the information system and 6,230,157 patients were registered. In 2019, there were 5,944,724 registered patients (94.05%) in China under community-based follow-up services and 5,375,252 patients (85.04%) had regular follow-ups; 5,295,657 patients (83.78%) were treated by taking antipsychotics and 3,354,251 (53.07%) patients took medication regularly; 4,974,314 patients at home (87.81%) were in stable condition; and there was a significant difference in patients' stable condition and medication-taking rates among eastern, central, and western regions ($p < 0.05$). Compared with 2018, the nationwide regular management rate, medication-taking rate, regular medication-taking rate, and patients' stable rate increased by 2.35%, 2.48%, 11.29%, and 7.21% respectively.

Conclusions and Implications for Public Health Practice: Compared with 2018, the level of management and treatment improved significantly but still needs to be further strengthened, especially in western China.

INTRODUCTION

Psychosis is early onset, long course, easily recurrent,

highly disabling, and has a heavy disease burden (1). Most patients with psychosis need to take long-term medication to control the disease. Over the past decade, the Chinese government committed to developing community-based follow-up and treatment services for psychosis, which is an important part of mental health services in China. In 2009, the community-based follow-up services of patients with 6 kinds of psychoses* were included in the national basic public health services (2). In this study, we analyzed community-based follow-up and treatment of patients with psychosis in China in 2019 and compared the results with indicators from 2018 to explore progress, discussed key issues in community-based service delivery, and provided references for the government on policymaking and service delivery in mental health.

METHODS

Data from the National Information System for Psychosis of China was used, which contained information on demographic characteristics, mental state, and follow-up and treatment records in community with six confirmed types of psychoses. Psychiatrists were responsible for clarifying diagnoses, inputting the data, and transferring patients' information to local communities through the system. Community mental health workers were responsible for the screening and follow-up of patients with psychosis in the community and inputting relevant data promptly into the information system. Workers in health administrative departments and mental illness prevention and control technology management institutions were responsible for auditing and quality control of data. The number of permanent residents was derived from data of China CDC as of December

* Psychoses as defined by National Basic Public Health Services include schizophrenia, delusional disorders, schizoaffective disorder, bipolar disorder, psychotic disorder due to epilepsy, and mental retardation with psychotic symptoms. Psychosis in this study referred to the six kinds of psychoses.

31, 2019.

SPSS 16.0 (SPSS Inc.) was used for data cleaning and analysis. Descriptive analysis and Kruskal-Wallis Test were used to analyze usage of the information system and the quality of the data on registration and community-based follow-up and treatment of patients with psychosis in China and its regions (the duration of service provision was from January 1, 2019 to December 31, 2019) and to compare the results of 2019 with 2018. The analytical unit of correlation analysis and regional differences in the analysis were at the provincial level. The statistical significance level (α) was set at 0.05.

According to the routine work requirements in community-based follow-up and treatment services for psychosis, 6 indicators were selected as the main statistical indicators in the study: 1) registration rate (%) = the number of registered patients/the total number of permanent residents in the jurisdiction \times 100%; registered patients refer to patients who were alive by December 31, 2019; 2) management rate (%) = the number of patients under follow-up services/the number of registered patients \times 100%; patients under follow-up services referred to patients with at least one complete follow-up on record in 2019; 3) regular management rate (%) = the number of patients under regular follow-up services/the number of registered patients \times 100%; patients under regular follow-up services referred to patients who were followed up at least once every three months in 2019; 4) medication-taking rate (%) = the number of patients taking antipsychotics/the number of registered patients \times 100%; patients taking antipsychotics referred to patients who had at least one follow-up record of taking antipsychotics in 2019; 5) regular medication-taking rate (%) = the number of patients taking antipsychotics regularly/the number of registered patients \times 100%; patients taking antipsychotics regularly referred to patients taking medication according to the doctor's prescription in 2019; 6) patients' stable rate (%) = the number of patients with stable condition of disease/the number of patients at home under follow-up services \times 100%; patients with stable condition of disease referred to patients who were in stable condition in each follow-up record in 2019.

RESULTS

In 2019, 333 cities and 2,854 districts/counties across the country all used the National Information

System for Psychosis. This was the first year to achieve full coverage of all cities and counties in the information system (332 cities and 2,832 counties were covered in 2018).

There were 6,230,157 patients with psychosis registered in the information system on December 31, 2019 (236,103 more cases, a 3.94% increase, compared with that on December 31, 2018). Among registered patients, schizophrenic patients accounted for 72.09%; males accounted for 50.86%; working-age patients (18–59 years old) accounted for 74.57%; married patients accounted for 54.08%; 67.45% of patients lived in rural areas; 59.49% of patients were farmers and only 2.60% were employed; 80.97% of patients' education level were with junior high school or below. (Table 1)

In 2019, the national registration rate of psychosis was 0.449%, with 3.46% increase compared with 2018 (0.434%). Among all 31 provincial-level administrative divisions (PLADs) and Xinjiang Production and Construction Corps, the registration rate in Hubei Province was the highest (0.501%). (Table 2)

By the end of 2019, 5,944,724 patients in China were under community-based follow-up services with an annual management rate of 94.05%, which was slightly lower than that of 2018 (94.90%). A total of 5,375,252 patients were under regular follow-up services with an annual regular management rate of 85.04%, which was 2.35% higher than that of 2018 (82.69%). Among all 31 PLADs and Xinjiang Production and Construction Corps, Hunan Province had the highest management rate (97.81%), and Shanghai Municipality had the highest regular management rate (92.68%). (Table 2)

Moreover, 5,295,657 patients were treated by taking antipsychotics in 2019 with an annual medication-taking rate of 83.78%, which was 2.48% higher than that of 2018 (81.30%). A total of 3,354,251 patients took antipsychotics regularly with an annual regular medication-taking rate of 53.07%, which was 11.29% higher than that of 2018 (41.78%). In 2019, there were 4,974,314 patients in stable condition, with an annual patients' stable rate of 87.81%, which was 7.21% higher than that of 2018 (80.60%). Among all 31 PLADs and Xinjiang Production and Construction Corps, Hunan Province had the highest medication-taking rate (94.66%), Beijing Municipality had the highest regular medication-taking rate (75.21%), and Shanghai Municipality had the highest patients' stable rate (98.03%). (Table 2)

In 2019, significant differences existed among

TABLE 1. Demographic characteristics and diagnosis of real-time registered patients with psychosis — China, 2019.

Characteristics	Number of patients	Constituent ratio (%)
Gender		
Male	3,168,381	50.86
Female	3,061,776	49.14
Age, years		
<18	111,552	1.79
18–44	2,399,698	38.52
45–59	2,246,142	36.05
≥60	1,472,765	23.64
Residential area type		
Urban	1,882,938	30.22
Rural	4,202,474	67.45
Unknown	144,745	2.32
Educational level		
Illiterate or semi-illiterate	1,641,161	26.34
Primary school or junior high school	3,403,397	54.63
Senior high school or technical secondary school	591,346	9.49
College and above	323,332	5.19
Unknown	270,921	4.35
Ethnicity		
Han	5,858,214	94.03
Minority	371,943	5.97
Marriage		
Unmarried	2,236,031	35.89
Married	3,369,046	54.08
Widowed	201,051	3.23
Divorced	296,366	4.76
Unknown	127,663	2.05
Occupation		
Employed	162,246	2.60
Farmers	3,706,379	59.49
Laid off or unemployed	740,243	11.88
Students	218,851	3.51
Retired	172,534	2.77
Other	1,229,904	19.74
Diagnosis		
Schizophrenia	4,491,447	72.09
Delusional disorders	28,306	0.45
Schizoaffective disorder	91,543	1.47
Bipolar disorder	423,654	6.80
Psychotic disorder due to epilepsy	344,630	5.53
Mental retardation with psychotic symptoms	850,577	13.65
In total	6,230,157	100.00

TABLE 2. Registration, community-based management and treatment of patients with psychosis — China, 2019.

Provincial-level administrative divisions (PLADs)	Number of permanent residents	Registered patients		Patients under follow-up services		Patients taking antipsychotics regularly		Patients taking antipsychotics regularly		Patients taking antipsychotics regularly		Patients with stable condition		
		Number	Registration rate (%)	Number	Rate (%)	Number	Rate (%)	Number	Rate (%)	Number	Rate (%)	Number	Rate (%)	
Beijing	21,707,000	81,073	0.365	77,417	95.49	75,077	92.60	73,640	90.83	60,973	75.21	70,067	68,320	97.51
Tianjin	15,568,693	58,609	0.370	53,358	91.04	49,654	84.72	51,610	88.06	40,173	68.54	49,903	45,614	91.41
Hebei	75,195,198	327,356	0.427	307,441	93.92	273,874	83.66	280,127	85.57	159,251	48.65	302,684	258,030	85.25
Shanxi	37,023,500	160,487	0.427	146,223	91.11	131,682	82.05	126,696	78.94	79,657	49.63	143,451	131,165	91.44
Inner Mongolia	25,286,999	115,963	0.458	110,358	95.17	104,546	90.15	105,069	90.61	78,678	67.85	107,157	94,316	88.02
Liaoning	43,688,987	189,091	0.425	171,474	90.68	161,231	85.27	143,576	75.93	90,098	47.65	159,164	147,443	92.64
Jilin	27,174,297	121,960	0.441	113,914	93.40	104,676	85.83	97,875	80.25	54,788	44.92	108,939	106,697	97.94
Heilongjiang	37,887,012	165,919	0.431	140,905	84.92	119,139	71.81	115,025	69.33	53,689	32.36	135,637	119,754	88.29
Shanghai	24,183,297	101,704	0.414	97,236	95.61	94,256	92.68	83,026	81.63	61,424	60.39	86,363	84,660	98.03
Jiangsu	80,293,076	343,242	0.421	329,390	95.96	315,967	92.05	279,006	81.29	200,155	58.31	318,612	299,928	94.14
Zhejiang	56,569,979	277,397	0.488	255,669	92.17	220,282	79.41	241,670	87.12	195,728	70.56	242,733	204,423	84.22
Anhui	62,548,000	302,224	0.476	287,774	95.22	257,866	85.32	265,341	87.80	186,358	61.66	281,055	255,436	90.88
Fujian	39,109,988	176,306	0.444	163,217	92.58	152,893	86.72	147,015	83.39	100,072	56.76	150,177	136,721	91.04
Jiangxi	46,220,986	211,397	0.453	203,648	96.33	176,653	83.56	195,741	92.59	131,720	62.31	195,691	176,159	90.02
Shandong	100,058,292	453,958	0.444	440,340	97.00	409,649	90.24	422,528	93.08	300,579	66.21	429,562	408,111	95.01
Henan	95,591,264	447,269	0.460	417,561	93.36	344,442	77.01	391,130	87.45	215,739	48.23	412,198	331,258	80.36
Hubei	59,020,004	299,682	0.501	281,984	94.09	241,281	80.51	256,396	85.56	151,723	50.63	270,734	223,946	82.72
Hunan	68,600,694	313,549	0.448	306,686	97.81	285,568	91.08	296,801	94.66	204,829	65.33	290,495	268,186	92.32
Guangdong	111,689,993	535,499	0.473	512,970	95.79	489,952	91.49	466,805	87.17	332,065	62.01	482,728	407,170	84.35
Guangxi	48,849,998	232,655	0.476	207,535	89.20	191,434	82.28	171,945	73.91	107,791	46.33	198,281	183,578	92.58
Hainan	10,021,802	44,286	0.436	40,363	91.14	34,190	77.20	32,974	74.46	19,893	44.92	37,361	31,669	84.76
Chongqing	30,751,601	141,330	0.451	133,022	94.12	126,965	89.84	114,663	81.13	67,609	47.84	120,275	104,031	86.49
Sichuan	83,019,999	387,059	0.457	370,864	95.82	347,239	89.71	299,710	77.43	169,227	43.72	330,384	283,103	85.69
Guizhou	35,800,002	165,802	0.454	154,847	93.39	138,933	83.79	138,382	83.46	54,099	32.63	139,772	116,615	83.43
Yunnan	48,004,978	230,482	0.480	215,879	93.66	171,499	74.41	172,658	74.91	79,772	34.61	209,144	153,353	73.32
Xizang(Tibet)	3,371,490	4,547	0.133	4,428	97.38	2,374	52.21	2,654	58.37	516	11.35	4,425	1,295	29.27
Shaanxi	38,354,419	182,320	0.468	165,721	90.90	147,480	80.89	142,264	78.03	73,655	40.40	161,226	150,803	93.54
Gansu	26,257,100	112,593	0.429	105,267	93.49	96,346	85.57	73,462	65.25	33,121	29.42	104,361	88,268	84.58
Qinghai	5,983,797	19,776	0.326	16,841	85.16	11,342	57.35	10,964	55.44	4,786	24.20	16,814	14,024	83.41
Ningxia	6,817,795	28,032	0.406	26,356	94.02	24,145	86.13	20,778	74.12	13,266	47.32	25,611	21,702	84.74
Xinjiang	21,441,404	76,517	0.351	73,845	96.51	63,978	83.61	66,346	86.71	27,473	35.90	68,285	48,895	71.60
Construction Corps	3,005,309	12,571	0.411	12,191	96.98	10,639	84.63	9,780	77.80	5,344	42.51	11,348	9,641	84.96
In total	1,389,096,953	6,320,655	0.449	5,944,724	94.05	5,375,252	85.04	5,295,657	83.78	3,354,251	53.07	5,664,637	4,974,314	87.81

* The number of registered patients is equal the number of registered patients who were alive by December 31, 2019 add the number of registered patients who died during January 1, 2019 and December 31, 2019.

eastern, central, and western regions of China[†] in patients' medication-taking rate, regular medication-taking rate, and stable rate ($p<0.05$). All the three rates were the lowest in the western region. (Table 3)

DISCUSSION

The Comprehensive Mental Health Action Plan 2013–2020 adopted in the 66th World Health Assembly made 2 of the 4 objectives focused on providing comprehensive, integrated, and responsive mental health and social care services in community-based settings and strengthening information systems, evidence, and research for mental health (3). In recent years, the Chinese government has put the two objectives as priority areas in enhancing the mental health service system and issued a series of policy projects, such as National Mental Health Work Plan (2015–2020) (4) and National Comprehensive Management Pilot Project for Mental Health Service (5), and built the National Information System for Psychosis in 2011. The coverage of community-based follow-up and treatment services for psychosis in China has been expanding year over year for both coverage areas and registered patients, and the registration rate has increased by 41.6% in 5 years (6–9).

The overall level of community-based follow-up and treatment services for psychosis has been improved in 2019. In past 5 years, the nationwide management rate, regular management rate, medication-taking rate, regular medication-taking rate and patients' stable rate increased by 27.56%, 137.74%, 139.10%, 196.15%, and 29.82% respectively (6). The National Mental Health Work Plan of China (2015–2020) (4) laid out 5-year work objectives on community-based management and treatment for psychosis and has

contributed greatly to the rapid improvement. Since the work plan launched in 2015, the National Health Commission (NHC) of China has actively issued relevant policies (10) and work regulations (11), carried out national pilot projects on comprehensive management for mental health jointly with multiple departments (5), conducted nationwide capacity-building training especially in the western region, and organized work experience exchange among PLADs and pilot cities. In the meanwhile, provincial and municipal governments issued a number of healthcare security and life assistance policies, raised funds on mental health through multiple channels and conducted technical guidance and personnel training especially for practitioners at the county level and below to enhance their ability to diagnose and treat mental illness. To a considerable extent, these measures promoted the improvement of the provision and quality of community-based services for psychosis in the last 5 years.

In addition, the rates of medication-taking have improved significantly between 2019 and 2018. The gap between patients' medication-taking rate and regular medication-taking rate was 30.71% in 2019. Although the gap is smaller than that of 2018 (39.52%), it is still needed to be further reduced through enhancing healthcare security policies and more health education to improve patients' medication compliance. Similarly, the regular management rate was 9.01% lower than the management rate in 2019, which revealed that quality control of follow-up services needed to be further strengthened.

Regional differences in patients' medication-taking and stable condition were also significant in 2019. PLADs with better comprehensive services performance were mainly concentrated in the eastern region and were interspersed in the central region.

TABLE 3. Regional comparison of community-based follow-up and treatment services for psychosis — China, 2019.

	Eastern Region (N=11)	Central Region (N=8)	Western Region (N=13)	H	p
Registration rate (%)	0.441	0.459	0.449	2.511	0.285
Management rate (%)	94.61	93.88	93.42	0.046	0.977
Regular management rate (%)	87.97	82.14	84.05	4.424	0.109
Medication-taking rate(%)	85.85	86.28	77.70	7.749	0.021
Regular medication-taking rate (%)	60.27	53.31	41.82	13.519	0.001
Patients' stable rate (%)	89.82	87.73	84.81	6.042	0.049

[†] Eastern region consists of 11 provincial-level administrative divisions (PLADs) (Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Shandong, Fujian, Guangdong, and Hainan); central region consists of 8 PLADs (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, and Hunan); western region consists of 12 PLADs (Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Xizang (Tibet), Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang) and Xinjiang Production and Construction Corps.

Community-based services in the western region needed to be further improved, especially in patients' medication-taking. The government should investigate and analyze difficulties in community-based mental health services in the western region, further focus on priority areas, and take effective measures such as providing financial support, more practical capacity building training, and appropriate skills guidance to remove barriers in service delivery and improve patients' stable condition in the western region.

In conclusion, patients' stable condition and community-based services provision for psychosis in 2019 were better than those in 2018, and all work indicators have been significantly improved in the past 5 years. In the future, more attention should be paid on improving quality of services (e.g. medication-taking) and strengthening community-based services delivery in the western region.

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Corresponding author: Ning Ma, maning@bjmu.edu.cn.

¹ Peking University Sixth Hospital, Peking University Institute of Mental Health, NHC Key Laboratory of Mental Health (Peking University), National Clinical Research Center for Mental Disorders (Peking University Sixth Hospital), Beijing, China.

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Preplanned Studies

Online Survey on Accessing Psychological Knowledge and Interventions During the COVID-19 Pandemic — China, 2020

Qingdong Lu^{1,2}; Lin Liu^{1,2}; Yunhe Wang^{1,2}; Le Shi³; Yingying Xu^{1,2}; Zhengang Lu³; Jianyu Que³; Jingli Yue³; Kai Yuan³; Wei Yan³; Yankun Sun³; Jie Shi^{1,2}; Yanping Bao^{1,2,3}; Lin Lu^{3,4,5}

Summary

What is already known on this topic?

The public was at elevated risk of mental health illnesses during the coronavirus disease 2019 (COVID-19) pandemic, so accessibility to psychological knowledge and interventions is vital to promptly respond to mental health crises.

What is added by this report?

During the pandemic period, 40,724 (71.9%) participants reportedly had access to psychological knowledge, and 36,546 (64.5%) participants had accessed information on psychological interventions. Participants who were male, unmarried, living alone, divorced or widowed, or infected with COVID-19 were less likely to access psychological knowledge and intervention.

What are the implications for public health practice?

Governments should pay more attention to formulate policies, popularize psychological education, and provide mental health services online or in the community.

The public was at elevated risk of mental health problems during the coronavirus disease 2019 (COVID-19) pandemic. In this article, we investigated the pattern and risk factors of accessing psychological information during the pandemic in China. From February 28 to March 11, 2020, a cross-sectional online survey was conducted in all provincial-level administrative divisions (PLADs) of China to obtain general demographic characteristics, access history for psychological knowledge and interventions, psychological status, and other information. Multivariable logistic regression was used to explore the influencing factors of accessing psychological information and intervention among the general population. A total of 56,679 people were included in the survey. During the pandemic period, 40,724 (71.9%) reported had access to psychological

knowledge, and 36,546 (64.5%) people accessed information on psychological intervention. Governments and professionals need to pay more attention to increase the accessibility of mental health resources during the pandemic in the future.

COVID-19 has spread across the world and galvanized global action since its emergence in late December 2019 (1). The unpredictability and uncertainty of the COVID-19 pandemic, associated containment strategies, and financial losses are among the major stressors that undoubtedly contributed to widespread emotional distress and increased the risk for psychiatric illness associated with COVID-19 (2). The prevalence of depression, anxiety, insomnia, and other mental health problems was high among COVID-19 patients, healthcare workers, and the general population (3–4). The World Health Organization (WHO) Director-General estimated that the COVID-19 pandemic had impacted the mental health of millions of people, yet relatively few people have access to quality mental health services (5). The high burden of mental health problems calls for earlier psychological interventions and timely mental health responses during the COVID-19 pandemic (2).

China has started to address the increasing need for mental health services as the Healthy China Action 2030 plan implemented a series of programs including improving mental health literacy of residents (6). After the emergence of COVID-19, a series of mental health measures were undertaken to address the demands of COVID-19 mental health concerns by adapting mental health services from China, other national governments, and international organizations (2,7–8). This study assessed the demographics and access histories of psychological knowledge and interventions to provide evidence for policymakers and popularize psychological health resources for China's public in the COVID-19 era.

This cross-sectional online survey was conducted from February 28, 2020 to March 11, 2020. A questionnaire was designed during the pandemic and

delivered through an online e-health platform Joybuy, which is an e-commerce platform launched by Jingdong for the trading of medicine-related products as detailed in our previous study (3). Written informed consent was received online before the respondents began the questionnaire. A total of 56,932 participants provided informed consent and submitted the questionnaires, and after the quality control by age, 56,679 participants from all PLADs in China were included.

The access histories of psychological knowledge and interventions were measured by the following question: “Did you access the information about psychological knowledge/psychological interventions before or during the COVID-19 pandemic through the media (TV, mobile phone, internet, newspaper, etc.)?” Psychological knowledge refers to causes, diagnoses, symptoms, preventive measures, and basic coping strategies to alleviate the psychological effects of common mental disorders such as depression, anxiety, insomnia, and post-traumatic stress disorder. The timing “before the pandemic” referred to daily life before the pandemic, and “during the pandemic” referred to the period between the national state of emergency being declared and the time answering the questionnaire. Self-reported difficulties in accessing the information before and during the pandemic were measured using the visual analogue scale (VAS), which ranged from 0 (no difficulty at all) to 10 (very difficult).

To explore factors potentially associated with accessing psychological knowledge and interventions, univariate logistic regression was performed followed by multivariable logistic regression analysis to calculate the odds ratios (ORs) and 95% confidence intervals (95% CI) of possible confounders and adjusting for potential covariates. The statistical analyses were performed using SPSS statistical software (IBM Corporation, version 25.0).

The mean±SD age of the participants was 36.0±8.2 years, 27,149 (47.9%) of them were male, 44,274 (78.1%) were married or cohabiting. Additional demographic and characteristic information was presented in Table 1.

Overall, 40,724 (71.9%) of the participants accessed psychological knowledge during the COVID-19 pandemic, which was higher than the 33,553 (59.2%) before the pandemic, and 36,546 (64.5%) participants accessed information on psychological interventions, which was also higher than the 27,043 (47.7%) before

the pandemic (Table 2). Individuals with and without mental health symptoms had higher rates of accessing both psychological knowledge and interventions during the pandemic than before the pandemic.

Multivariable logistic regression analyses showed that the participants who were male (OR=1.42, 95% CI: 1.36–1.49), unmarried (OR=1.16, 95% CI: 1.10–1.24), lived alone, divorced, or widowed (OR=1.22, 95% CI: 1.06–1.41), or infected with COVID-19 (OR=2.35, 95% CI: 1.27–4.34) had less chance to access psychological knowledge. Meanwhile, people who were older (aged 41–50 years: OR=0.80, 95% CI: 0.74–0.86; >50 years: OR=0.68, 95% CI: 0.60–0.77; reference group: 18–30 years), were frontline workers (OR=0.85, 95% CI: 0.80–0.91), had a family members served as frontline workers (OR=0.81, 95% CI: 0.77–0.85), experienced quarantine (OR=0.83, 95% CI: 0.79–0.87), traffic restrictions (OR=0.78, 95% CI: 0.73–0.82), community containment (OR=0.85, 95% CI: 0.78–0.93), have mental health symptoms (OR=0.78, 95% CI: 0.75–0.82) and accessed psychological knowledge (OR=0.30, 95% CI: 0.28–0.31) and interventions (OR=0.22, 95% CI: 0.20–0.23) before the pandemic were more likely to access psychological knowledge during the pandemic.

Similarly, the factors that deteriorated the odds of obtaining information on psychological interventions were being male (OR=1.44, 95% CI: 1.38–1.50), unmarried (OR=1.11, 95% CI: 1.05–1.18), living alone, divorced, or widowed (OR=1.22, 95% CI: 1.06–1.40), and infected with COVID-19 (OR=1.86, 95% CI: 1.00–3.45). The protective factors were being older (aged 41–50: OR=0.82, 95% CI: 0.76–0.88; >50: OR=0.71, 95% CI: 0.64–0.80), living in the countryside (OR=0.86, 95% CI: 0.78–0.94), being frontline workers (OR=0.79, 95% CI: 0.74–0.84), having a family members or friends that were frontline workers (OR=0.81, 95% CI: 0.77–0.85), experiencing quarantine (OR=0.86, 95% CI: 0.82–0.90), traffic restrictions (OR=0.76, 95% CI: 0.72–0.80), community containment (OR=0.80, 95% CI: 0.74–0.88), having symptoms of mental health disorders (OR=0.72, 95% CI: 0.69–0.76), and accessing psychological knowledge (OR=0.57, 95% CI: 0.54–0.60) and interventions (OR=0.12, 95% CI: 0.12–0.12) before the pandemic (Table 3).

DISCUSSION

This nationwide survey showed that about 71.9%

TABLE 1. Demographic characteristics and epidemic-related information for the sample during the COVID-19 pandemic — China, 2020.

Factors	Total, N (%)	No. of people accessing psychological knowledge (%)	No. of people accessing information of interventions (%)
Overall	56,679	40,724 (71.9)	36,546 (64.5)
Age, years			
18–30	16,142 (28.5)	11,548 (71.5)	10,537 (65.3)
31–40	26,824 (47.3)	18,978 (70.8)	16,890 (63.0)
41–50	11,215 (19.8)	8,283 (73.9)	7,406 (66.0)
>50	2,498 (4.4)	1,915 (76.7)	1,713 (68.6)
Gender			
Female	29,530 (52.1)	21,847 (74.0)	19,767 (66.9)
Male	27,149 (47.9)	18,877 (69.5)	16,779 (61.8)
Area type			
Urban	52,839 (93.2)	37,862 (71.7)	33,896 (64.1)
Rural	3,840 (6.8)	2,862 (74.5)	2,650 (69.0)
Level of education			
Less than senior school	2,084 (3.7)	1,578 (75.7)	1,448 (69.5)
Senior school	7,456 (13.2)	5,780 (77.5)	5,227 (70.1)
College degree or higher	47,139 (83.2)	33,366 (70.8)	29,871 (63.4)
Marital status			
Married or cohabiting	44,274 (78.1)	32,213 (72.8)	28,870 (65.2)
Unmarried	11,135 (19.6)	7,626 (68.5)	6,892 (61.9)
Live apart, divorced, or widowed	1,270 (2.2)	885 (69.7)	784 (61.7)
Monthly family income, RMB			
≤5,000	13,016 (23.0)	9,665 (74.3)	8,771 (67.4)
5,000–7,999	13,663 (24.1)	10,050 (73.6)	9,056 (66.3)
8,000–11,999	12,829 (22.6)	9,270 (72.3)	8,240 (64.2)
≥12,000	17,171 (30.3)	11,739 (68.4)	10,479 (61.0)
History of chronic diseases			
Yes	3,274 (5.8)	2,359 (72.1)	2,068 (63.2)
No or unknown	53,405 (94.2)	38,365 (71.8)	34,478 (64.6)
History of mental disorders			
Yes	161 (0.3)	109 (67.7)	103 (64.0)
No or unknown	56,518 (99.7)	40,615 (71.9)	36,443 (64.5)
Family history of mental disorders			
Yes	396 (0.7)	272 (68.7)	238 (60.1)
No or unknown	56,283 (99.3)	40,452 (71.9)	36,308 (64.5)
Sleep disturbance			
Yes	15,981 (28.2)	11,756 (73.6)	10,642 (66.6)
No	40,698 (71.8)	28,968 (71.2)	25,904 (63.6)
Smoking			
Yes	6,965 (12.3)	5,111 (73.4)	4,543 (65.2)
No	49,714 (87.7)	35,613 (71.6)	32,003 (64.4)

TABLE 1. (Continued)

Factors	Total, N (%)	No. of people accessing psychological knowledge (%)	No. of people accessing information of interventions (%)
Alcohol consumption			
Yes	5,145 (9.1)	3,789 (73.6)	3,423 (66.5)
No	51,534 (90.9)	36,935 (71.7)	33,123 (64.3)
Infection status of COVID-19			
Confirmed or suspected	100 (0.2)	60 (60.0)	59 (59.0)
Uninfected	56,579 (99.8)	40,664 (71.9)	36,487 (64.5)
Have infected family members			
Yes	608 (1.1)	434 (71.4)	397 (65.3)
No	56,071 (98.9)	40,290 (71.9)	36,149 (64.5)
Close contact with patients infected with COVID-19			
Yes	219 (0.4)	157 (71.7)	143 (65.3)
No	56,460 (99.6)	40,567 (71.9)	36,403 (64.5)
Live in Hubei Province during pandemic			
Yes	2,352 (4.1)	1,662 (70.7)	1,522 (64.7)
No	54,327 (95.9)	39,062 (71.9)	35,024 (64.5)
Have you been to Hubei Province before the outbreak			
Yes	2,452 (4.3)	1,727 (70.4)	1,585 (64.6)
No	54,227 (95.7)	38,997 (71.9)	34,961 (64.5)
Participation of frontline work related to the outbreak			
Yes	9,725 (17.2)	7,680 (79.0)	7,111 (73.1)
No	46,954 (82.8)	33,044 (70.4)	29,435 (62.7)
Family members were frontline workers			
Yes	17,587 (31.0)	13,646 (77.6)	12,475 (70.9)
No	39,092 (69.0)	27,078 (69.3)	24,071 (61.6)
Experience of traffic restriction			
Yes	44,762 (79.0)	33,002 (73.7)	29,877 (66.7)
No	11,917 (21.0)	7,722 (64.8)	6,669 (56.0)
Experience of community containment			
Yes	53,076 (93.6)	38,444 (72.4)	34,578 (65.1)
No	3,603 (6.4)	2,280 (63.3)	1,968 (54.6)
Experience of quarantine			
Centralized or at home	16,454 (29.0)	12,555 (76.3)	11,389 (69.2)
No	40,225 (71.0)	28,169 (70.0)	25,157 (62.5)
Method of work during the pandemic			
Work at home	7,427 (13.1)	5,330 (71.8)	4,794 (64.5)
Work at institution	29,498 (52.0)	21,009 (71.2)	18,718 (64.5)
Not back to work	19,754 (34.9)	14,385 (72.8)	13,034 (66.0)
Mental health symptoms (depression, anxiety, insomnia, or acute distress)			
Any symptoms	26,680 (47.1)	20,059 (75.2)	18,402 (69.0)
No	29,999 (52.9)	20,665 (68.9)	18,144 (60.5)

TABLE 2. Access history and difficulty accessing psychological knowledge and interventions during the COVID-19 pandemic — China, 2020.

Factors	Before COVID-19 pandemic	During COVID-19 pandemic
Access to psychological knowledge (N, %)		
Total	33,553 (59.2)	40,724 (71.9)
People with mental health symptoms	16,381 (61.4)	20,059 (75.2)
People without mental health symptoms	17,172 (57.2)	20,665 (68.9)
Access to psychological intervention information (N, %)		
Total	27,043 (47.7)	36,546 (64.5)
People with mental health symptoms	13,708 (51.4)	18,402 (69.0)
People without mental health symptoms	13,335 (44.5)	18,144 (60.5)
Difficulty in getting access to psychological intervention information (mean±SD)		
Total	3.31±2.61	3.26±2.52*
People with mental health symptoms	4.01±2.53	4.07±2.43*
People without mental health symptoms	2.69±2.53	2.55±2.38*

* The difference between before and during the pandemic was statistically significant ($p < 0.05$).

and 64.5% of participants had accessed psychological knowledge and interventions during the pandemic. This study identified the associated factors hindering the accessibility of psychological information and intervention during the COVID-19 pandemic among subpopulations, which provided information to improve the availability of mental health services and addressing the mental health wellbeing during the pandemic. Accordingly, the Chinese government has prioritized mental health services since the beginning of the pandemic (7), and the National Health Commission of China has published several guiding documents and guidelines for emergency psychological crisis interventions for the COVID-19 epidemic (9).

Participants infected with COVID-19 reported less accessibility to information and interventions, and confirmed patients may focus on their own physical condition so they neglect their mental health. The Chinese government implemented programs to improve access to psychological counseling, social work services, and comprehensive psychological rehabilitation for COVID-19 patients, isolation personnel, and their families in the post-pandemic period (10). Moreover, more choices for psychological treatment and interventions should be provided for individuals with mental health problems, especially the integration of more online and field psychological resources in the future.

The findings in this study were subject to at least three limitations. First, this was an online survey, and a convenience sampling method was used. Although this study had extensive geographic coverage across China and a large sample size, it was conducted among

internet users who were young and highly educated; thus, the representativeness of the sample might be limited. Second, people's accessibility information comes from a single self-reported question and there were no repeated verification problems and detailed resources included in this questionnaire, so the accessibility of psychological resources should be addressed in the future. Third, because this was a cross-sectional study, the associations could only be established at the population level. Future studies, especially large cohort studies of the population, are needed.

Mental health literacy is a target of the Healthy China Action and Healthy China 2030 Plan and a call to action for the general population. Governments, researchers, and educators should pay more attention to formulating policies, popularizing psychological education, and providing mental health services online and in the community.

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TABLE 3. Multivariable logistic regressions of risk factors associated with accessing knowledge and intervention during the COVID-19 pandemic — China, 2020.

Variables	Risk of not accessing psychological knowledge		Risk of not accessing psychological interventions	
	aOR* (95% CI)	p-value	aOR* (95% CI)	p-value
Age, years				
18–30	1 (Reference)		1 (Reference)	
31–40	0.97 (0.92–1.03)	0.280	1.00 (0.95–1.06)	0.952
41–50	0.80 (0.74–0.86)	<0.001	0.82 (0.76–0.88)	<0.001
>50	0.68 (0.60–0.77)	<0.001	0.71 (0.64–0.80)	<0.001
Gender				
Female	1 (Reference)		1 (Reference)	
Male	1.42 (1.36–1.49)	<0.001	1.44 (1.38–1.50)	<0.001
Areas types				
Urban	–		1 (Reference)	
Rural	–	–	0.86 (0.78–0.94)	0.001
Marital status				
Married or cohabiting	1 (Reference)		1 (Reference)	
Unmarried	1.16 (1.10–1.24)	<0.001	1.11 (1.05–1.18)	<0.001
Live alone, divorced, or widowed	1.22 (1.06–1.41)	0.006	1.22 (1.06–1.40)	0.006
Infection status of COVID–19				
Uninfected	1 (Reference)		1 (Reference)	
Confirmed or suspected	2.35 (1.27–4.34)	0.006	1.86 (1.00–3.45)	0.049
Participation of frontline work related to the outbreak				
No	1 (Reference)		1 (Reference)	
Yes	0.85 (0.80–0.91)	<0.001	0.79 (0.74–0.84)	<0.001
Family members were frontline workers				
No	1 (Reference)		1 (Reference)	
Yes	0.81 (0.77–0.85)	<0.001	0.81 (0.77–0.85)	<0.001
Experienced traffic restriction				
No	1 (Reference)		1 (Reference)	
Yes	0.78 (0.73–0.82)	<0.001	0.76 (0.72–0.80)	<0.001
Experienced community containment				
No	1 (Reference)		1 (Reference)	
Yes	0.85 (0.78–0.93)	0.001	0.80 (0.74–0.88)	<0.001
Experienced quarantine				
No	1 (Reference)		1 (Reference)	
Centralized or at home	0.83 (0.79–0.87)	<0.001	0.86 (0.82–0.90)	<0.001
Mental health symptoms				
No	1 (Reference)		1 (Reference)	
Yes	0.78 (0.75–0.82)	<0.001	0.72 (0.69–0.76)	<0.001
Access to psychological knowledge before pandemic				
Yes	1 (Reference)		1 (Reference)	
No	0.30 (0.28–0.31)	<0.001	0.57 (0.54–0.60)	<0.001
Access to psychological interventions before pandemic				
Yes	1 (Reference)		1 (Reference)	
No	0.22 (0.20–0.23)	<0.001	0.12 (0.12–0.12)	<0.001

* Odds ratio adjusted for age, gender, living areas, education, marriage, income, sleep disturbance, smoke, alcohol, infection status of COVID-19, experience of traffic restriction, community containment and quarantine, participation of frontline work, situations of work, exposing experience, mental health symptoms, and the situations of access to psychological knowledge and information of psychological intervention before the pandemic.

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Corresponding authors: Jie Shi, shijie@bjmu.edu.cn; Yanping Bao, baoyanping@bjmu.edu.cn; Lin Lu, linlu@bjmu.edu.cn.

¹ National Institute on Drug Dependence and Beijing Key Laboratory of Drug Dependence, Peking University, Beijing, China;
² School of Public Health, Peking University, Beijing, China;
³ Institute of Mental Health, National Clinical Research Center for Mental Disorders, Key Laboratory of Mental Health and Peking University Sixth Hospital, Peking University, Beijing, China;
⁴ Peking-Tsinghua Center for Life Sciences and PKU-IDG/McGovern Institute for Brain Research, Peking University, Beijing, China.

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Preplanned Studies

Burden of Mental and Substance Use Disorders — China, 1990–2019

Chao Ma^{1,✉}; Shicheng Yu^{2,✉}; Yueqin Huang¹; Zhaorui Liu¹; Qiqi Wang²;
Hongguang Chen¹; Tingting Zhang^{1,✉}; Maigeng Zhou^{3,✉}

Summary

What is already known about this topic?

Mental and substance use disorders have notable contributions to the disease burden in China.

What is added by this report?

In China, mental disorders and substance use disorders accounted for 20.29 million and 5.76 million disability-adjusted life years (DALYs) in 2019, respectively; depressive disorders were the leading cause of DALYs. For mental disorders, the numbers of DALYs increased 12.06% from 2000 to 2019 while the standardized rates declined 5.24%; for substance use disorders, both the numbers and standardized rates of DALYs decreased 8.52% and 18.52%, respectively.

What are the implications for public health practices?

Mental and substance use disorders pose a challenge to the healthcare system in China. The government should take action and decrease the associated burden of disease.

In recent years, mental and substance use disorders have captured the attention of policymakers in China. A national survey showed that approximately one in ten people were suffering from mental disorders in the past year (1). The Global Burden of Disease Study 2010 (GBD 2010) showed that mental, neurological, and substance use disorders accounted for 13% of disability-adjusted life years (DALYs) of non-communicable diseases in China (2). In GBD 2019 accompanied by changes in methodology, the disease burden for 1990, 2000, and 2019 was recalculated. In this report, we aimed to summarize the latest estimates of mental and substance use disorders of GBD 2019 in China and explore the trends from 1990 to 2019. In 2019, mental disorders and substance use disorders accounted for 20.29 million and 5.76 million DALYs in China. Depressive disorders were the leading cause, accounting for 29.03% of DALYs of mental and substance use disorders, followed by anxiety disorders

and schizophrenia. The number of DALYs attributed to mental disorders increased by 12.06% between 2000 and 2019, which was mainly driven by population and aging, and the standardized rate of DALYs declined 5.24% in the period. Our findings showed the significant challenge that mental and substance use disorders still posed to health care systems in China. Actions should be taken to make these disorders a public health priority.

In GBD 2019, mental disorders included schizophrenia, depressive disorders, bipolar disorder, anxiety disorders, eating disorders, autism spectrum disorders, attention-deficit/hyperactivity disorder (ADHD), conduct disorder, idiopathic developmental intellectual disability, and other mental disorders. Substance use disorders included alcohol use disorders and drug use disorders.

Mortality was derived from vital registration, surveillance, and other sources, including data from the Chinese National Disease Surveillance Points System and the China CDC Cause of Death Reporting System. Considering insufficient available data, mortality was only estimated for eating disorders, alcohol use disorders, and drug use disorders.

Systematic reviews of community representative epidemiological studies were conducted to extract the estimates of indications of disease burden, including prevalence, incidence, remission, and duration. DisMod-MR, a Bayesian meta-regression instrument, was used to compute the sex-specific and age-specific estimates from the available data.

Years of life lost (YLLs) were the product of mortality estimates and the standard life expectancy. Years lived with disability (YLDs) were the product of prevalence and disability weight. DALYs were calculated by adding YLLs and YLDs.

Data on disease burden indicators were obtained, and their standardized rates were adjusted based on China's 2010 National Census. Percent change was calculated as the difference in quantities between 2019 and 2000 divided by the quantity in 2000. Because the

indicators related to death of most mental and substance use disorders were not estimated, the mortality and YLLs were not listed in the current report. SAS 9.4 (SAS Institute Inc., Cary, NC, USA) was used to perform all the analyses.

In China, mental disorders and substance use disorders accounted for 20.29 million and 5.76 million DALYs, or 5.31% and 1.51% of total burden in 2019, respectively (Table 1). Considering the number of YLDs, mental disorders and substance use disorders accounted for 13.19% and 2.95% of all YLDs in China, respectively. Among the total DALYs attributable to mental disorders, 10.91 million DALYs

(53.76%) was in females. In the case of substance use disorders, only 1.57 million DALYs (27.29%) were in females. As expected, the number of DALYs attributable to mental disorders increased in the 3 decades, rising by 12.06% between 2000 and 2019. However, the number of DALYs attributed to substance use disorders fluctuated in recent years decreasing by 8.52%. The standardized rates of DALYs of mental disorders and substance use disorders decreased by 5.24% and 18.52%, respectively (Table 1).

Table 2 presented the numbers and standardized rates of the disease burden of 4 important groups of

TABLE 1. Overall incidence, prevalence, and burden indicators of mental and substance use disorders — China, 1990–2019.

Disease Gender	Year	Incidence		Prevalence		YLDs		DALYs	
		N	P'	N	P'	N	P'	N	P'
Mental disorders									
Male	1990	17,202,840	2,970.34	67,652,491	11,446.77	7,273,363	1,317.04	7,273,427	1,317.05
	2000	19,931,663	3,064.56	77,058,444	11,458.69	8,488,240	1,323.53	8,488,287	1,323.54
	2019	21,301,694	2,863.96	78,905,611	10,926.44	9,382,016	1,275.38	9,382,921	1,275.52
	2019 vs. 2000*(%)	6.87	-6.55	2.40	-4.64	10.53	-3.64	10.54	-3.63
Female	1990	25,699,004	4,897.47	64,975,588	12,391.56	8,364,066	1,638.24	8,364,774	1,638.36
	2000	26,844,223	4,487.62	75,693,881	12,437.26	9,620,483	1,612.06	9,621,742	1,612.25
	2019	31,423,301	4,221.31	81,257,083	11,297.32	10,909,569	1,502.04	10,910,906	1,502.27
	2019 vs. 2000*(%)	17.06	-5.93	7.35	-9.17	13.40	-6.82	13.40	-6.82
Both	1990	42,901,844	3,908.01	132,628,079	11,913.81	15,637,430	1,473.49	15,638,201	1,473.55
	2000	46,775,886	3,763.25	152,752,326	11,951.35	18,108,723	1,465.29	18,110,029	1,465.38
	2019	52,724,995	3,541.04	160,162,694	11,141.86	20,291,586	1,388.44	20,293,827	1,388.63
	2019 vs. 2000*(%)	12.72	-5.90	4.85	-6.77	12.05	-5.24	12.06	-5.24
Substance use disorders									
Male	1990	8,129,143	1,479.60	17,723,860	3,247.16	2,586,887	460.62	3,639,417	667.18
	2000	8,993,793	1,401.98	19,580,679	3,083.95	2,839,423	440.24	4,454,353	701.94
	2019	10,006,860	1,417.60	22,632,420	3,168.36	3,120,261	439.82	4,184,659	586.44
	2019 vs. 2000*(%)	11.26	1.11	15.59	2.74	9.89	-0.10	-6.05	-16.45
Female	1990	2,456,217	464.82	5,916,017	1,082.33	1,210,470	217.95	1,873,445	345.66
	2000	3,109,561	502.29	6,869,216	1,103.42	1,275,070	203.93	1,837,561	293.89
	2019	3,072,714	457.06	7,347,936	1,081.51	1,416,512	206.30	1,571,000	228.24
	2019 vs. 2000*(%)	-1.18	-9.01	6.97	-1.99	11.09	1.16	-14.51	-22.34
Both	1990	10,585,360	991.07	23,639,877	2,204.45	3,797,357	343.90	5,512,862	512.71
	2000	12,103,354	964.63	26,449,895	2,120.34	4,114,493	325.35	6,291,914	503.51
	2019	13,079,574	945.99	29,980,356	2,141.67	4,536,773	325.07	5,755,658	410.24
	2019 vs. 2000*(%)	8.07	-1.93	13.35	1.01	10.26	-0.09	-8.52	-18.52

Note: N: Number of cases for incidence and prevalence; number of person years for years lived with disability (YLDs) and disability-adjusted life years (DALYs).

P': Standardized rate calculated using the 2010 National Census as the standard population, expressed as 1/100,000.

* Percent change was calculated as difference value between 2019 and 2000 divided by quantity in 2000.

TABLE 2. Incidence, prevalence, and DALYs of four disorders — China, 1990–2019.

Disease	Year	Incidence		Prevalence		DALYs	
		N	P'	N	P'	N	P'
Depressive disorders							
	1990	31,303,436	3,058.19	34,143,548	3,553.28	5,486,751	553.93
	2000	33,867,949	2,883.82	39,716,857	3,467.03	6,176,680	532.88
	2019	41,005,280	2,667.68	50,056,236	3,233.18	7,561,985	491.61
	2019 vs. 2000*(%)	21.07	-7.49	26.0	-6.74	22.43	-7.74
Anxiety disorders							
	1990	6,667,495	557.36	41,687,414	3,747.77	4,045,138	359.37
	2000	7,732,908	568.00	48,860,682	3,832.95	4,736,062	368.63
	2019	7,285,634	516.55	47,842,153	3,345.40	4,574,328	322.37
	2019 vs. 2000*(%)	-5.78	-9.06	-2.08	-12.72	-3.41	-12.55
Schizophrenia							
	1990	253,270	20.69	3,551,298	366.15	2,319,765	237.48
	2000	268,487	20.67	4,387,832	366.77	2,872,739	239.07
	2019	258,038	20.66	5,498,737	377.36	3,569,946	246.31
	2019 vs. 2000*(%)	-3.89	-0.07	25.32	2.89	24.27	3.03
Alcohol use disorders							
	1990	7,573,050	722.29	15,091,555	1,486.95	1,934,370	194.61
	2000	8,789,123	701.62	17,719,725	1,447.20	2,325,521	192.68
	2019	9,856,282	700.27	20,796,992	1,446.71	2,833,114	196.66
	2019 vs. 2000*(%)	12.14	-0.19	17.37	-0.03	21.83	2.07

Note: N: Number of cases for incidence and prevalence; number of person years for disability-adjusted life (DALYs).

P': Standardized rate calculated using the 2010 National Census as the standard population, expressed as 1/100,000.

* Percent change was calculated as difference value between 2019 and 2000 divided by quantity in 2000.

disorders from 1990 to 2019. Percent change in the numbers of DALYs attributable to schizophrenia, depressive disorders, and alcohol use disorders increased, while the percent change of standardized rates of depressive disorders declined.

In 2019, depressive disorders were the leading cause of mental and substance use disorders in both sexes. These mental disorders accounted for 20.93% of all mental and substance use disorder DALYs in males and 37.84% in females. In males, alcohol use disorders and schizophrenia followed depressive disorders. In females, anxiety disorders and schizophrenia ranked second and third (Figure 1). The burden due to substance use disorders, especially for alcohol use disorders, was substantially higher in men compared with women.

Figure 2 illustrated the differences in the number of DALYs for females and males for 2000 and 2019 by age group for some mental and substance use disorders. For both males and females, two of the leading causes of DALYs between both time periods included depressive disorders and schizophrenia. Depressive disorders and anxiety disorders predominantly

occurred in females at all ages, becoming notably evident from age 10–14 years old and continuing throughout all subsequent age groups. The highest number of DALYs of depressive disorders in a specific age group occurred between age 25–44 years old in 2000, which was delayed to age 45–59 years old in 2019. Drug use disorders and alcohol use disorders predominantly occurred in males at all ages. Drug use disorder climbed to a peak of 500,000 between 25–30 years old in 2000, which was far more than alcohol use disorders. However, the peak only reached 300,000 in 2019, which was similar to alcohol use disorders.

DISCUSSION

Between 1990 and 2019, the profile of the disease burden of China changed rapidly. The number of the disease burden of mental disorders in 2019 increased but the standardized rates declined. Overall, mental and substance use disorders were notable contributors to the disease burden in China, directly accounting for nearly 7%. These disorders were responsible for more

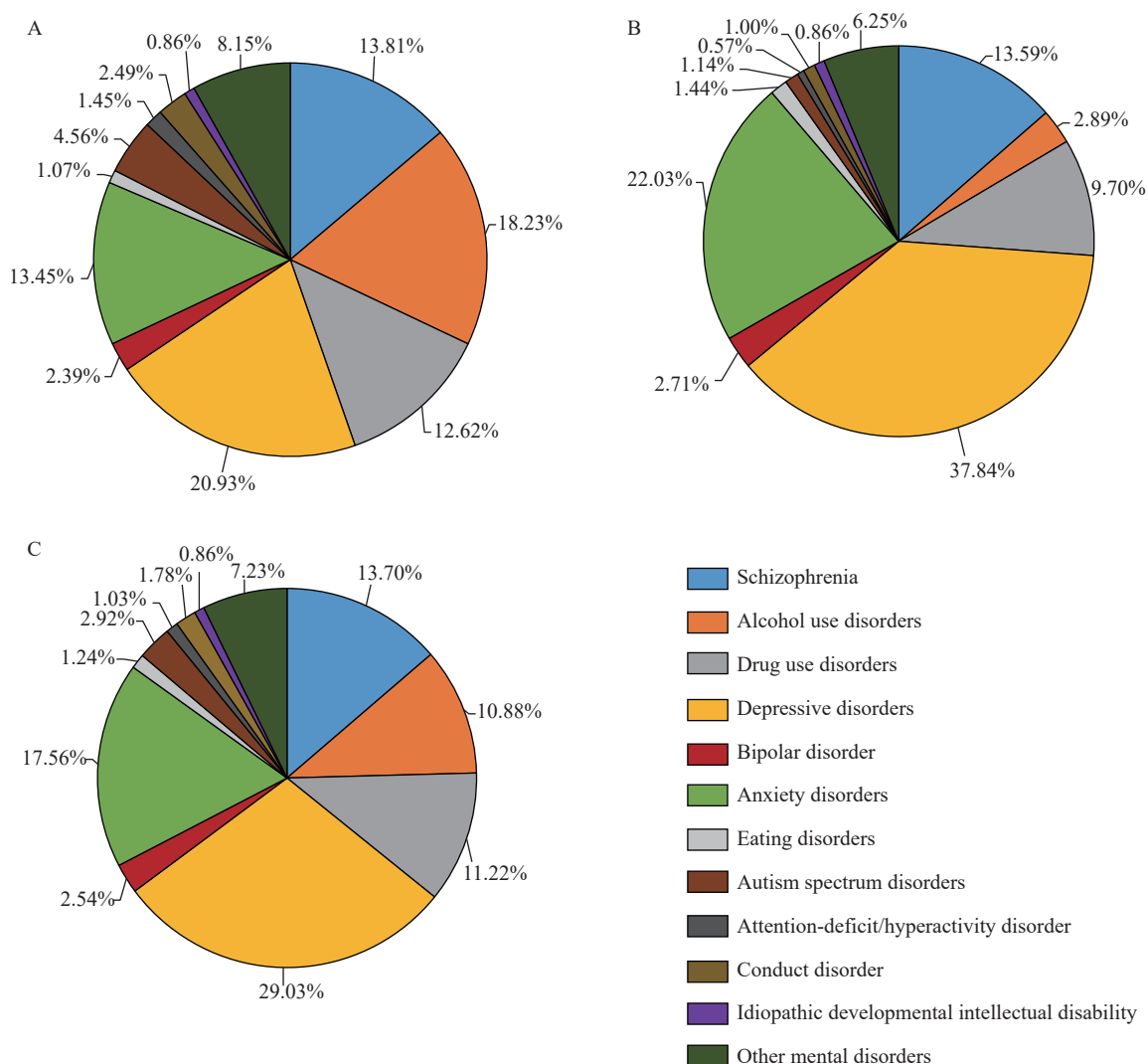


FIGURE 1. Contribution of disorders to the overall number of disability-adjusted life years (DALYs) due to mental and substance use disorders by sex, 2019. (A) male; (B) female; (C) both.

DALYs than neurological disorders, HIV/AIDS, chronic respiratory diseases, and diabetes and kidney diseases in GBD 2017 (3).

Although the numbers of DALYs due to mental disorders increased from 1990 to 2019, the change was largely attributed to population growth and aging considering the decreasing standardized rates. Population growth and aging played an important role in the dynamic changes of disease burden. The increases in life expectancy and population will lead to more people living with mental disorders for a longer time.

Compared with severe mental disorders, including schizophrenia and bipolar disorder, common mental disorders (e.g. depressive disorders and anxiety disorders) accounted for a greater proportion of mental and substance use disorders. Depressive disorders featured prominently in DALY ranking in both sexes

because of its high prevalence. Previous studies suggested that depressive disorders were the most prevalent mental disorders (1,4). Severe mental disorders were highly debilitating but did not rank highly in terms of DALYs because of relatively lower prevalence.

The current results showed that challenges were still posed to healthcare systems in China. An economic burden study showed that the total annual costs of mental disorders increased more than 3 times from 2005 to 2013 in China. The total costs of mental disorders in 2013 accounted for more than 15% of the total health expenditure in China, equivalent to 1.1% of the gross domestic product (GDP) (5). In spite of such a heavy burden to individuals and the society, the majority of individuals with mental disorders rarely seek treatment. Unmet needs for mental health

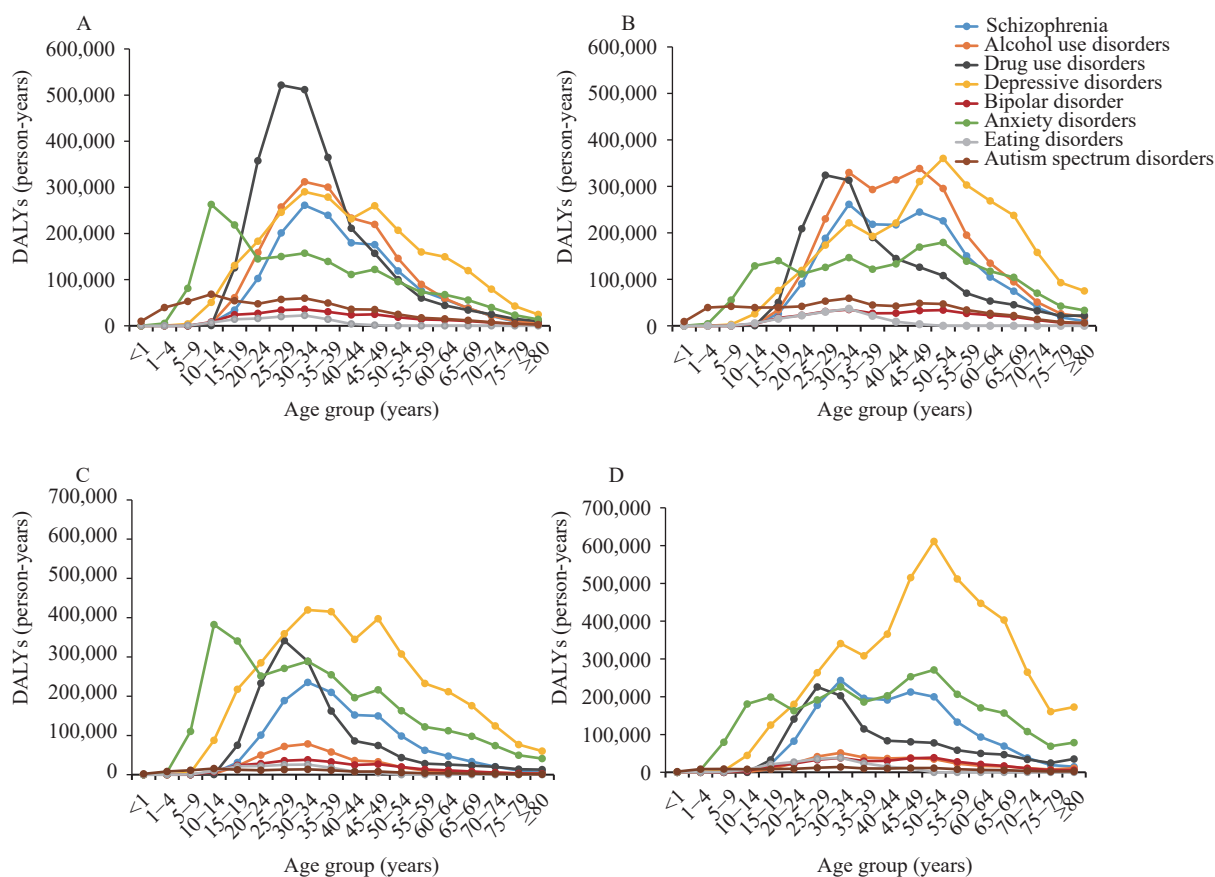


FIGURE 2. Numbers of disability-adjusted life years (DALYs) for some mental and substance use disorders in 2000 and 2019 by age and sex. (A) in 2000 by age in male; (B) in 2019 by age in male; (C) in 2000 by age in female; (D) in 2019 by age in female.

treatment were common globally and especially concerning in still-developing countries including China. Even among persons seeking treatment, delays in initial treatment contact still existed (6). The main reasons for this included the lack of recognition of diseases, stigma, and the scarcity of available resources. The adoption of China's first mental health law in 2013 was a milestone development as the Chinese Government committed to strengthening public health and primary healthcare including increasing investment and training qualified professionals (7). Mental health professionals could reduce the prevalence by reducing remission and develop public education programs to boost mental health literacy and combat stigma.

This study was subject to several limitations. First, epidemiological data of many disorders were not available. Most of the existing studies concentrated on common mental disorders and were limited in terms of scope. In GBD 2019, if no data or insufficient data were available for the country, estimates would be generated from surrounding countries using DisMod-

MR, which might not accurately present the disease burden of the country. However, with more attention paid to mental and substance use disorders, a nationally epidemiological survey in China, the China Mental Health Survey, was conducted, which might contribute to more precise data of prevalence and disease burden (1). Second, mental disorders were rarely listed as the cause of death in GBD. When several factors, including mental disorders, contributed to a death, the death was always coded to the direct disease but not mental disorders, which could underestimate the disease burden of mental disorders. Third, the current report only presented the disease burden at the national level. Data at the provincial level and municipal level can offer more valuable information and help inform local policies in China.

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Corresponding authors: Tingting Zhang, zhangtingting101@126.com; Maigeng Zhou, maigengzhou@126.com.

¹ Peking University Sixth Hospital, Peking University Institute of Mental Health, NHC Key Laboratory of Mental Health (Peking University), National Clinical Research Center for Mental Disorders (Peking University Sixth Hospital), Beijing, China; ² Office of Epidemiology, Chinese Center for Disease Control and Prevention, Beijing, China; ³ National Center for Chronic and Non-Communicable Disease Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing, China.

[§] Joint first authors.

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