Trends in Use of Prescription, Over-the-Counter, and Traditional Chinese Medicine for Mental Health Conditions in China, 2009-2017

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Background

- Traditional Chinese Medicine (TCM) has over 3,000 years' history for treatment across therapeutic areas and conditions in China.[1]
- Many patients use both TCM and Western medicine together. TCM is perceived to be more effective at curing the root cause of an illness or condition, although it is slow to action. Western medicine on the other hand is perceived to be more powerful yet with undesirable side effects.[2]
- Concomitant use of TCM with prescription (Rx) and over-the-counter (OTC) medications has also been recommended in clinical practice guidelines.[3]
- While some forms of TCM (such as acupuncture and tai chi) have been reported to improve quality of life and reduce pain, use of herbal products has had mixed results and there are concerns over unregulated manufacturing resulting in contaminated products.[4]
- However, because herbal treatments are generally cheaper than Western medicines, they tend to be more popular amongst those who needed to pay out of pocket including the uninsured and underinsured.[5]

Objective

- This study aims to describe Rx, OTC, and TCM treatment trends for mental health conditions in China between 2009 and 2017.

Methods

Study Design and Data Source

- Cross-sectional, internet-based study
- Data from the National Health and Wellness Survey (NHWS), a self-reported population-based survey with sampling representative of each country's adult population based on age and sex distribution for the year of survey, was used.
- Data collected in China during 2009 and 2017 were used.

NHWS Study Population

- Adults aged ≥18 years and older
- Residents of:
  - China
- Having completed the survey in either of the following years:
  - 2009
  - 2017
- Self-reporting an experience in the past 12 months of any of the following conditions:
  - Anxiety
  - Attention deficit disorder
  - Attention deficit hyperactivity disorder
  - Bipolar disorder
  - Depression
  - Generalized anxiety disorder
  - Obsessive compulsive disorder
  - Panic disorder
  - Phobias
  - Social anxiety disorder

Measures

- Demographic characteristics included:
  - Age
  - Sex
- Health characteristics included:
  - Experience in the past 12 months of any of the above-described conditions
  - Diagnosis status
- Clinical behaviors included:
  - Rx use for all conditions previously described
  - OTC and TCM use for treatment of depression and anxiety

Statistical Analysis

- All data are reported using descriptive statistics; counts and percentages for categorical data and means and standard deviations for continuous data.
- Bivariate analysis compared sample demographics for continuous (student's *t*-test) and categorical (Chi-square test) data.

Results

Rx Use for Treatment of Mental Health Conditions, 2009 and 2017

- The counts and percentages of respondents reporting Rx use for the treatment of mental health conditions in China in 2009 and 2017 is shown in **Table 1**.

Table 1. Rx Use for Treatment of Mental Health Conditions, 2009 and 2017

Condition*		2009			2017		
		Using an Rx	Not Using an Rx	Total with Condition	Using an Rx	Not Using an Rx	Total with Condition
Anxiety	n	184	1336	1520	112	1285	1397
	%	12.1%	87.9%		8.0%	92.0%	
Attention Deficit Disorder	n	66	483	549	34	438	472
	%	12.0%	88.0%		7.2%	92.8%	
Attention Deficit Hyperactivity Disorder	n	18	64	82	13	192	205
	%	22.0%	78.0%		6.3%	93.7%	
Bipolar Disorder	n	97	391	488	51	762	813
	%	19.9%	80.1%		6.3%	93.7%	
Depression	n	137	549	686	121	601	722
	%	20.0%	80.0%		16.8%	83.2%	
Generalized Anxiety Disorder	n	15	82	97	11	187	198
	%	15.5%	84.5%		5.6%	94.4%	
Obsessive Compulsive Disorder	n	30	208	238	36	648	684
	%	12.6%	87.4%		5.3%	94.7%	
Panic Disorder	n	41	227	268	14	314	328
	%	15.3%	84.7%		4.3%	95.7%	
Phobias	n	25	157	182	16	248	264
	%	13.7%	86.3%		6.1%	93.9%	
Social Anxiety Disorder	n	65	557	662	45	959	1004
	%	9.8%	84.1%		4.5%	95.5%	

Note: Rx = prescription
*Conditions based on self-reported experience in the past 12 months for all except bipolar disorder, which is self-reported ever having experienced.

Sample Demographics by Rx Use for Mental Health Conditions, 2009 and 2017

- Key differences in sample demographics by Rx use between 2009 and 2017 included:
  - Older mean age for those not using a Rx in 2017 compared to 2009 for all conditions (**Table 2**)
  - More men than women using a Rx in 2017 compared to 2009 for anxiety, bipolar disorder, and depression (**Table 2**)
  - Fewer people with a diagnosis not taking a Rx in 2017 compared to 2009 for all conditions (**Table 2**)

Table 2. Sample Demographics by Rx Use for Mental Health Conditions, 2009 and 2017

Condition*			2009				2017						
			A. Using an Rx		B. Not Using an Rx		C. Using an Rx		D. Not Using an Rx				
			N / Mean	% / SD	N / Mean	% / SD	*p*-Value A vs. B	N / Mean	% / SD	N / Mean	% / SD	*p*-Value C vs. D	*p*-Value A vs. C	*p*-Value B vs. D
Anxiety	**Age**		38.80	12.90	34.50	11.70	<0.001	39.30	13.30	37.80	13.10	0.215	0.744	<0.001
	Sex	Male	89	48.4%	666	49.9%	0.706	88	62.9%	917	49.4%	0.002	0.009	0.782
		Female	95	51.6%	670	50.1%		52	37.1%	941	50.6%			
	Diagnosed with Condition	Yes	184	100.0%	437	32.7%	N/A	140	100.0%	291	15.7%	N/A	N/A	<0.001
		No	0	0.0%	899	67.3%		0	0.0%	1567	84.3%			
Attention Deficit Disorder	**Age**		33.80	12.00	35.70	12.90	0.232	41.50	14.60	38.20	14.80	0.151	0.004	0.001
	Sex	Male	37	56.1%	255	52.8%	0.618	28	63.6%	452	55.0%	0.261	0.429	0.443
		Female	29	43.9%	228	47.2%		16	36.4%	370	45.0%			
	Diagnosed with Condition	Yes	66	100.0%	110	22.8%	N/A	44	100.0%	82	10.0%	N/A	N/A	<0.001
		No	0	0.0%	373	77.2%		0	0.0%	740	90.0%			
Attention Deficit Hyperactivity Disorder	**Age**		32.20	11.40	30.10	9.11	0.485	43.70	17.20	39.90	15.80	0.358	0.021	<0.001
	Sex	Male	11	61.1%	41	64.1%	0.818	10	52.6%	205	53.9%	0.911	0.603	0.132
		Female	7	38.9%	23	35.9%		9	47.4%	175	46.1%			
	Diagnosed with Condition	Yes	18	100.0%	13	20.3%	N/A	19	100.0%	23	6.1%	N/A	N/A	<0.001
		No	0	0.0%	51	79.7%		0	0.0%	357	93.9%			
Bipolar Disorder	**Age**		36.90	12.60	33.40	10.20	0.014	37.10	12.60	37.80	14.50	0.705	0.923	<0.001
	Sex	Male	48	49.5%	209	53.5%	0.484	34	66.7%	378	49.6%	0.018	0.046	0.216
		Female	49	50.5%	182	46.5%		17	33.3%	384	50.4%			
	Diagnosed with Condition	Yes	97	100.0%	150	38.4%	N/A	51	100.0%	105	13.8%	N/A	N/A	<0.001
		No	0	0.0%	241	61.6%		0	0.0%	657	86.2%			
Depression	**Age**		35.90	12.30	34.30	11.60	0.176	37.90	14.00	39.20	14.50	0.301	0.188	<0.001
	Sex	Male	60	43.8%	258	47.0%	0.502	81	55.5%	480	48.2%	0.100	0.049	0.652
		Female	77	56.2%	291	53.0%		65	44.5%	516	51.8%			
	Diagnosed with Condition	Yes	137	100.0%	201	36.6%	N/A	146	100.0%	220	22.1%	N/A	N/A	<0.001
		No	0	0.0%	348	63.4%		0	0.0%	776	77.9%			
Generalized Anxiety Disorder	**Age**		40.60	13.90	35.10	11.20	0.166	45.30	13.90	40.90	16.40	0.254	0.367	<0.001
	Sex	Male	7	46.7%	40	48.8%	0.880	11	73.3%	165	47.8%	0.053	0.136	0.876
		Female	8	53.3%	42	51.2%		4	26.7%	180	52.2%			
	Diagnosed with Condition	Yes	15	100.0%	35	42.7%	N/A	15	100.0%	39	11.3%	N/A	N/A	<0.001
		No	0	0.0%	47	57.3%		0	0.0%	306	88.7%			
Obsessive Compulsive Disorder	**Age**		35.60	11.00	31.60	9.86	0.067	38.90	14.00	37.40	14.50	0.481	0.246	<0.001
	Sex	Male	13	43.3%	87	41.8%	0.876	29	58.0%	525	48.3%	0.178	0.203	0.089
		Female	17	56.7%	121	58.2%		21	42.0%	563	51.7%			
	Diagnosed with Condition	Yes	30	100.0%	64	30.8%	N/A	50	100.0%	149	13.7%	N/A	N/A	<0.001
		No	0	0.0%	144	69.2%		0	0.0%	939	86.3%			
Panic Disorder	**Age**		42.70	15.20	34.50	12.50	0.002	37.50	14.70	40.90	16.40	0.270	0.179	<0.001
	Sex	Male	19	46.3%	106	46.7%	0.967	16	64.0%	257	47.6%	0.109	0.163	0.820
		Female	22	53.7%	121	53.3%		9	36.0%	283	52.4%			
	Diagnosed with Condition	Yes	41	100.0%	94	41.4%	N/A	25	100.0%	53	9.8%	N/A	N/A	<0.001
		No	0	0.0%	133	58.6%		0	0.0%	487	90.2%			
Phobias	**Age**		38.10	14.10	32.40	11.30	0.063	35.20	13.30	40.50	15.90	0.068	0.455	<0.001
	Sex	Male	10	40.0%	75	47.8%	0.469	15	62.5%	208	49.9%	0.229	0.115	0.652
		Female	15	60.0%	82	52.2%		9	37.5%	209	50.1%			
	Diagnosed with Condition	Yes	25	100.0%	55	35.0%	N/A	24	100.0%	61	14.6%	N/A	N/A	<0.001
		No	0	0.0%	102	65.0%		0	0.0%	356	85.4%			
Social Anxiety Disorder	**Age**		35.60	9.97	32.90	9.88	0.039	33.20	11.60	35.20	12.90	0.179	0.206	<0.001
	Sex	Male	37	56.9%	313	56.2%	0.911	38	60.3%	751	50.3%	0.121	0.697	0.018
		Female	28	43.1%	244	43.8%		25	39.7%	741	49.7%			
	Diagnosed with Condition	Yes	65	100.0%	166	29.8%	N/A	63	100.0%	230	15.4%	N/A	N/A	<0.001
		No	0	0.0%	391	70.2%		0	0.0%	1262	84.6%			

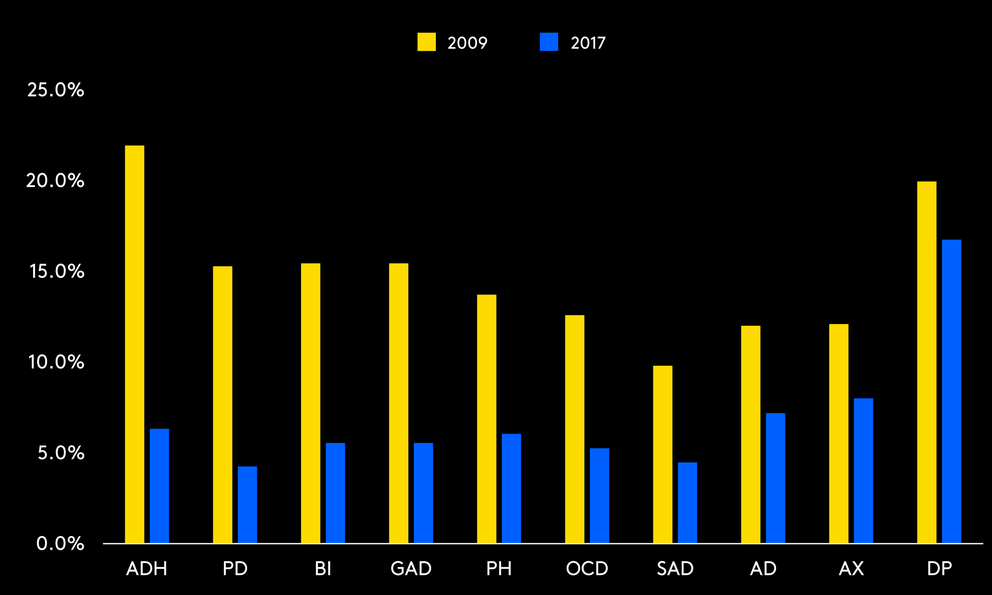
Note: Rx = prescription
*Conditions based on self-reported experience in the past 12 months for all except bipolar disorder, which is self-reported ever having experienced.

Results, continued

Trends in Rx Use for Treatment of Mental Health Conditions, 2009 and 2017

- Across all mental health conditions, there was higher Rx use in 2009 compared to 2017 (**Figure 1**).
- The greatest percentage point difference in Rx use between 2009 and 2017 was for the treatment of attention deficit hyperactivity disorder (22.0% to 6.3%), followed by panic disorders (15.3% to 4.3%), bipolar disorder and generalized anxiety disorder (15.5% to 5.6% for each), phobias (13.7% to 6.1%), obsessive compulsive disorder (12.6% to 5.3%), social anxiety disorder (9.8% to 4.5%), attention deficit disorder (12.0% to 7.2%), anxiety (12.1% to 8.0%), and depression (20.0% to 16.8%).

Figure 1. Trends in Rx Use for Treatment of Mental Health Conditions, 2009 and 2017

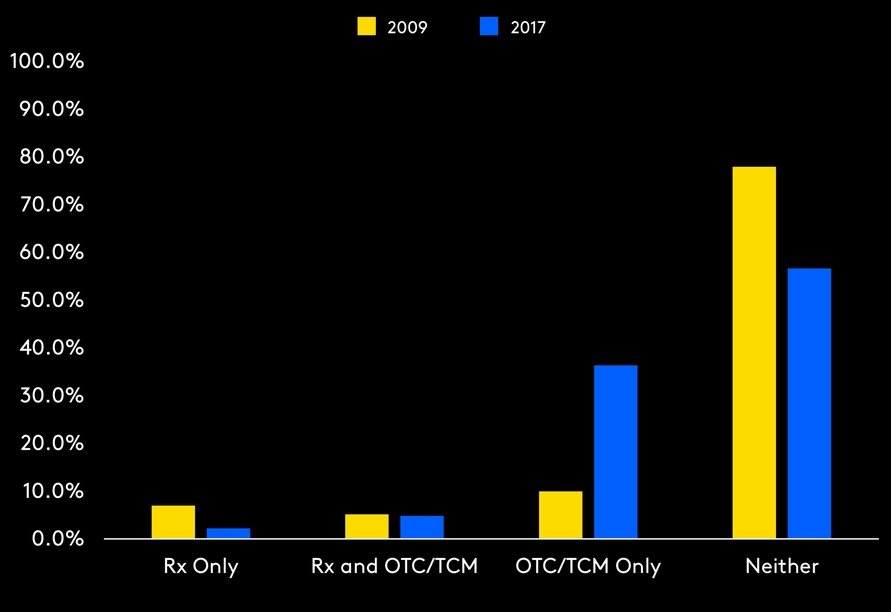


Note: AX = anxiety; AD = attention deficit disorder; ADH = attention deficit hyperactivity disorder; BI = bipolar disorder; DP = depression; GAD = generalized anxiety disorder; OCD = obsessive compulsive disorder; PD = panic disorder; PH = phobias; SAD = social anxiety disorder

Trends in Treatment of Anxiety, China 2009 and 2017

- Between 2009 and 2017, Rx use for the treatment of anxiety decreased from 7.0% to 2.2%, while OTC/TCM use increased from 9.9% to 36.3% (**Figure 2**).
- There were more people in 2009 who were not treating their anxiety (78.0%) than in 2017 (56.7%) (**Figure 2**).

Figure 2. Trends in Treatment of Anxiety, China 2009 and 2017

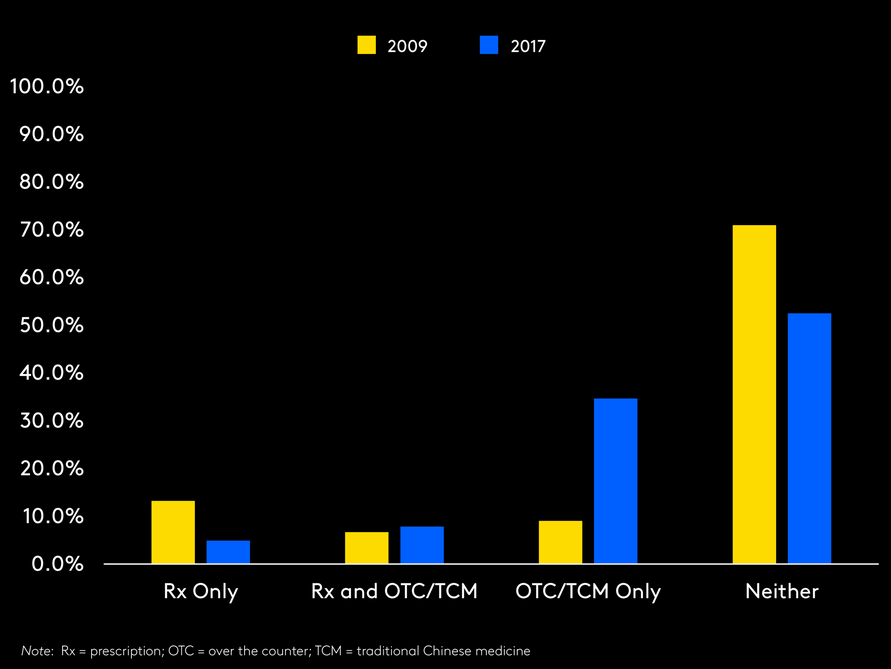


Note: Rx = prescription; OTC = over the counter; TCM = traditional Chinese medicine

Trends in Treatment of Depression, China 2009 and 2017

- Between 2009 and 2017, Rx use for the treatment of depression decreased from 13.3% to 4.9%, while OTC/TCM use increased from 9.0% to 34.7% (**Figure 3**).
- There were more people in 2009 who were not treating their depression (71.0%) than in 2017 (52.5%) (**Figure 3**).

Figure 3. Trends in Treatment of Depression, China 2009 and 2017



Note: Rx = prescription; OTC = over the counter; TCM = traditional Chinese medicine

Limitations

- Diagnoses and experience of conditions in the NHWS, as well as Rx use for the treatment of selected conditions, were self-reported and could not be clinically verified.
- Only respondents reporting a physician diagnosis of a condition were asked about Rx use for that condition, thus, off-label use and Rx use among the undiagnosed could not be assessed.
- OTC and TCM use were not asked of for all conditions, and the survey did not specify whether physicians may have prescribed their patients TCM.
- Due to the cross-sectional nature of the data, temporal changes for each individual could not be evaluated, rather time trends were reported at the aggregate level.

Conclusions

- Rx use for treatment of all mental health conditions has decreased in China over time, while OTC/TCM use for treatment of depression and anxiety have increased.
- Decreasing Rx use and increasing OTC/TCM use for depression and anxiety may be related to the disease-specific lower costs of OTC/TCM compared to Rx and changes in government reimbursement policies.
- The impact of Rx use vs. OTC/TCM use on patient-reported outcomes should be explored in future studies.

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