

Uncovering the Hidden Burden of Depression: A Country Comparison

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Background

- An estimated 264 million individuals suffer from depression globally.¹
- However, there may be substantial under-reporting of depression experience/symptoms related to social taboos, discrimination, personal values, or lack of support.²
- Patients in primary care have reported choosing not to disclose their depression to their physicians out of concern of being prescribed an anti-depressant.³
- Likewise, respondents reported more depression symptoms when they were unaware of the purpose of the depression screening instrument.⁴
- Furthermore, self-reported depressive symptoms are often under-reported compared to observer assessment.^{5,6}

Objective

- This study aims to uncover the global hidden burden of depression.

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 (as well as race for the United States [US]) distribution for the year of survey, was used.
- The most recent available data were used for each country.

NHWS Study Population

- Adults aged ≥18 years and older
- Residents of one of the following countries (year of survey):
 - US (2019)
 - European Union 5 (EU5 – France, Germany, Italy, Spain, United Kingdom [UK]) (2018)
 - Brazil (2018)
 - South Korea (2020)
 - Taiwan (2020)
 - Japan (2019)
 - China (2017)
- Respondents were categorized according to their depression status:
 - Those self-reporting an experience in the past 12 months and a physician diagnosis of depression were categorized as "experiencing depression and diagnosed."
 - Those self-reporting an experience in the past 12 months but not having a physician diagnosis of depression were categorized as "experiencing depression but not diagnosed."
 - Respondents who neither reported an experience in the past 12 months nor a physician diagnosis of depression were categorized as "not experiencing depression."

Measures

- Outcomes:
 - Depression
 - Depression severity was evaluated using the Patient Health Questionnaire 9-Item (PHQ-9) with scores categorized as none/minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (≥20).⁷

Statistical Analysis

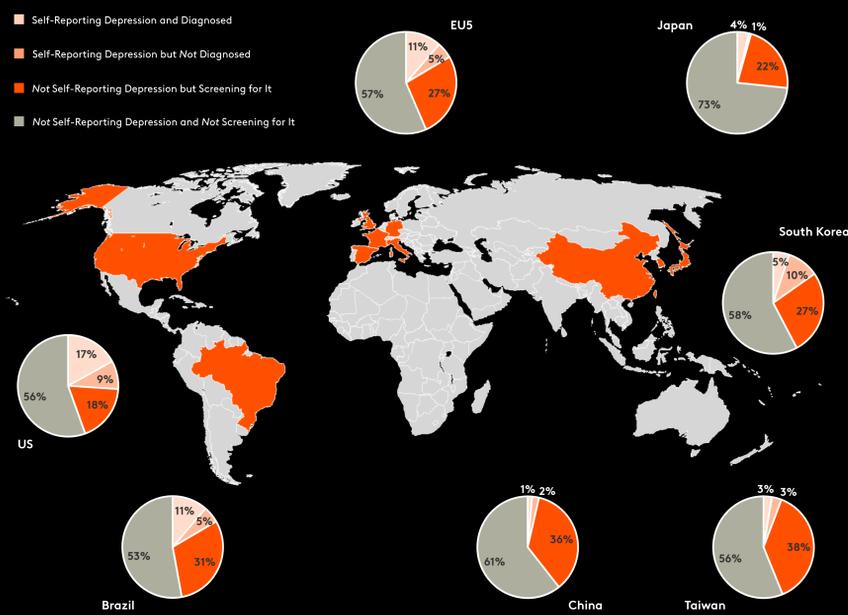
- Prevalence rates are presented.
- All data are reported using descriptive statistics; counts and percentages for categorical data and means and standard deviations for continuous data.

Results

Population Distribution of Self-Reported Depression, Diagnosis, and Symptom Screening According to PHQ-9 Scores for Each Country

- Prevalence of diagnosed depression ranged from 1% (China) to 17% (US) (Figure 1).
- Rates of self-reported depression without a diagnosis ranged from 1% (Japan) to 10% (South Korea) (Figure 1).
- Between 53% (Brazil) and 73% (Japan) of the population in each country neither self-reported depression nor screened for it according to PHQ-9 scores (Figure 1).
- Between 18% (US) and 38% (Taiwan) of the population in each country screened for depression according to PHQ-9 scores, despite not self-reporting depression (Figure 1).

Figure 1. Population Distribution of Self-Reported Depression, Diagnosis, and Symptom Screening According to PHQ-9 Scores for Each Country



Sample Characteristics: PHQ-9 Category

- The number and percentage of respondents screening for each PHQ-9 category according to the depression status are shown for each country in Table 1.

Table 1. PHQ-9 Category According to Depression Status for Each Country

Country	Depression Status	None	Mild	Moderate	Moderately Severe	Severe	Total	Country Sample
US	Self-reporting depression and diagnosed	n 2816	3809	2637	2024	1482	12,768	74,994
	%	6.0%	29.3%	37.3%	44.8%	38.4%		
	Self-reporting depression but not diagnosed	n 2091	2239	1283	710	438	6761	
	%	4.5%	17.2%	18.1%	15.7%	11.4%		
EU5	Not self-reporting depression	n 41,651	6942	3153	1780	1939	55,465	62,000
	%	89.5%	53.4%	44.6%	39.4%	50.2%		
	Self-reporting depression and diagnosed	n 1011	2087	1682	1516	990	7086	
	%	2.8%	14.6%	27.7%	40.1%	57.3%		
BR	Self-reporting depression but not diagnosed	n 632	1125	765	440	229	3171	12,000
	%	1.7%	7.9%	12.6%	13.4%	13.2%		
	Not self-reporting depression	n 35,038	11,056	3,615	1,524	510	51,743	
	%	95.6%	77.5%	59.6%	46.5%	29.5%		
SK	Self-reporting depression and diagnosed	n 251	426	286	205	190	1358	20,108
	%	3.7%	15.5%	22.4%	27.6%	40.2%		
	Self-reporting depression but not diagnosed	n 153	181	130	90	82	636	
	%	2.3%	6.6%	10.2%	12.1%	17.3%		
TW	Not self-reporting depression	n 6,548	2,149	859	449	201	10,006	20,050
	%	94.0%	78.0%	67.4%	60.3%	42.5%		
	Self-reporting depression and diagnosed	n 172	317	278	169	103	1044	
	%	1.4%	7.2%	12.6%	19.2%	31.7%		
JP	Self-reporting depression but not diagnosed	n 514	748	462	217	93	2034	30,006
	%	4.2%	17.1%	21.0%	24.6%	27.3%		
	Not self-reporting depression	n 11,612	3,319	1,463	496	140	17,030	
	%	94.4%	75.7%	66.4%	56.2%	41.1%		
CH	Self-reporting depression and diagnosed	n 68	172	117	116	68	541	19,994
	%	0.6%	2.9%	7.1%	13.9%	25.5%		
	Self-reporting depression but not diagnosed	n 67	244	163	102	48	624	
	%	0.6%	4.1%	9.8%	12.2%	18.0%		
JP	Not self-reporting depression	n 11,267	5,474	1,375	618	151	18,885	30,006
	%	93.8%	92.8%	85.1%	73.9%	56.8%		
	Self-reporting depression and diagnosed	n 219	279	230	198	194	1,120	
	%	1.0%	6.2%	12.8%	22.7%	34.6%		
CH	Self-reporting depression but not diagnosed	n 30	56	51	39	34	210	19,994
	%	0.1%	1.2%	2.8%	4.5%	6.1%		
	Not self-reporting depression	n 22,016	4,183	1,509	635	333	28,676	
	%	99.0%	92.6%	84.3%	72.8%	59.4%		
EU5	Self-reporting depression and diagnosed	n 61	95	76	20	32	284	19,994
	%	0.5%	1.7%	4.9%	3.8%	14.7%		
	Self-reporting depression but not diagnosed	n 59	214	105	40	20	438	
	%	0.5%	3.9%	6.8%	7.7%	9.2%		
BR	Not self-reporting depression	n 12,128	5,146	1,371	461	166	19,272	19,994
	%	99.0%	94.3%	88.3%	88.5%	76.1%		

Note: US = United States; EU5 = France, Germany, Italy, Spain, UK; BR = Brazil; SK = South Korea; TW = Taiwan; JP = Japan; CH = China

Results, continued

Sample Characteristics: Average PHQ-9 Score

- The average PHQ-9 score according to depression status for each country is shown in Table 2.

Table 2. Average PHQ-9 Score According to Depression Status for Each Country

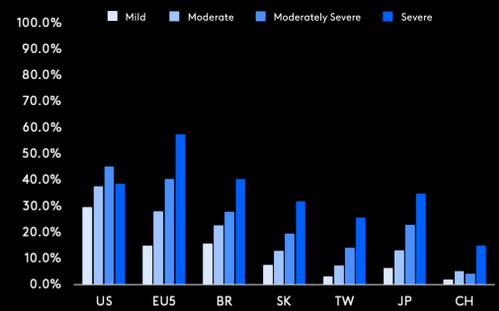
Country	Depression Status	PHQ-9 Score	
		Mean	Standard Deviation
US	Self-reporting depression and diagnosed	10.40	6.92
	Self-reporting depression but not diagnosed	8.46	6.29
	Not self-reporting depression	3.62	5.71
EU5	Self-reporting depression and diagnosed	11.70	6.67
	Self-reporting depression but not diagnosed	9.81	5.93
	Not self-reporting depression	3.88	4.58
BR	Self-reporting depression and diagnosed	10.90	7.11
	Self-reporting depression but not diagnosed	10.40	7.13
	Not self-reporting depression	4.46	5.36
SK	Self-reporting depression and diagnosed	10.80	6.36
	Self-reporting depression but not diagnosed	8.65	5.64
	Not self-reporting depression	3.83	4.68
TW	Self-reporting depression and diagnosed	11.90	6.59
	Self-reporting depression but not diagnosed	10.70	5.68
	Not self-reporting depression	4.40	4.67
JP	Self-reporting depression and diagnosed	11.80	7.60
	Self-reporting depression but not diagnosed	12.10	6.93
	Not self-reporting depression	2.98	4.50
CH	Self-reporting depression and diagnosed	9.90	6.41
	Self-reporting depression but not diagnosed	9.36	5.02
	Not self-reporting depression	4.18	4.37

Note: US = United States; EU5 = France, Germany, Italy, Spain, UK; BR = Brazil; SK = South Korea; TW = Taiwan; JP = Japan; CH = China

PHQ-9 Category for Depression Screening among Those Self-Reporting Depression and Having a Diagnosis

- Among those self-reporting depression and having a diagnosis, there were more respondents screening for mild, moderate, and moderately severe depression in the US (29.3%, 37.3%, and 44.8%, respectively) compared to all other countries/regions (Figure 2).
- The highest rates of respondents screening for severe depression were observed in the EU5 (57.3%), followed by Brazil (40.2%), the US (38.4%), Japan (34.6%), South Korea (31.7%), Taiwan (25.5%), and China (14.7%) (Figure 2).

Figure 2. Global Comparison of Individuals Screening for Depression among Those Self-Reporting Depression and Having a Diagnosis

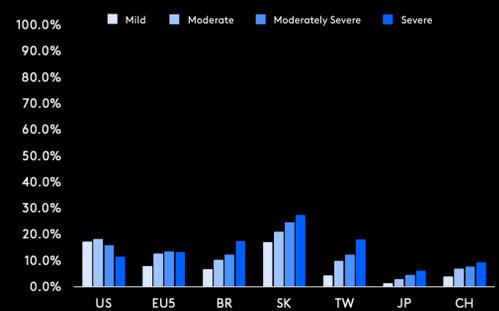


Note: US = United States; EU5 = France, Germany, Italy, Spain, UK; BR = Brazil; SK = South Korea; TW = Taiwan; JP = Japan; CH = China

PHQ-9 Category for Depression Screening among Those Self-Reporting Depression but Not Having a Diagnosis

- Among those self-reporting depression but not having a diagnosis, there were more respondents screening for moderate, moderately severe, and severe in South Korea (21.0%, 24.6%, and 27.3%, respectively) compared to all other countries (Figure 3).
- After South Korea, the country with the highest rate of respondents screening for severe depression was Taiwan (18.0%), followed by Brazil (17.3%), the EU5 (13.2%), the US (11.4%), China (9.2%), and Japan (6.1%) (Figure 3).

Figure 3. PHQ-9 Category for Depression Screening among Those Self-Reporting Depression but Not Having a Diagnosis

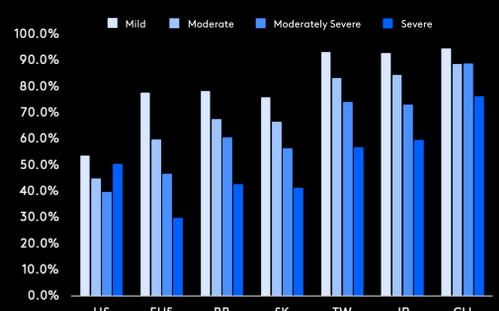


Note: US = United States; EU5 = France, Germany, Italy, Spain, UK; BR = Brazil; SK = South Korea; TW = Taiwan; JP = Japan; CH = China

PHQ-9 Category for Depression Screening among Those Not Self-Reporting Depression

- Among those not self-reporting depression, there were more respondents screening for mild, moderate, moderately severe, and severe in China (94.3%, 88.3%, 88.5%, and 76.1%, respectively) compared to all other countries (Figure 4).
- After China, the country with the highest rate of respondents screening for severe depression was Japan (59.4%), followed by Taiwan (56.6%), the US (50.2%), Brazil (42.5%), South Korea (41.1%), and the EU5 (29.5%) (Figure 4).

Figure 4. PHQ-9 Category for Depression Screening among Those Not Self-Reporting Depression



Note: US = United States; EU5 = France, Germany, Italy, Spain, UK; BR = Brazil; SK = South Korea; TW = Taiwan; JP = Japan; CH = China

Limitations

- Diagnoses and experience of conditions in the NHWS were self-reported and could not be clinically verified.
- For conditions that are often associated with social taboos, such as depression, it is possible that self-reported data sources, such as the NHWS, may underestimate "true" prevalence.
- Additionally, due to poor understanding and lack of awareness around mental health issues, symptom screening questionnaires, such as the PHQ-9, may fail to detect risk among populations who may be more likely to provide answers that align with social desirability rather than reality.
- Due to the cross-sectional nature of the data, temporal changes in prevalence could not be evaluated.

Conclusions

- Among individuals screening for depression, rates of self-reported depression were lowest in Taiwan, China, and Japan.
- These populations represent potentially vulnerable groups unaware of the severity of their symptoms, who may be at increased risk for depression-related poor health outcomes, social isolation, and self-harm.
- These findings highlight the necessity of ensuring appropriate depression screening and mental health services are available.

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