Changes in Self-Reported Depressive Symptoms in the United States from 2005-2016

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ABSTRACT

Problem:

Depression is the fifth most common cause of disability in the United States [1]. Depressive symptoms are also commonly experienced with numerous psychological disorders and with medical comorbidity. Impairment from depressive symptoms can range from being very mild and almost undetectable to complete incapacity [2]. Depressive symptoms are linked with a higher chronic disease burden [3] and are a predictor for worse treatment outcomes in other psychological disorders and drug dependence [4]. Additionally, depressive symptoms are associated with greater mortality risk [5]. In turn, it is essential to analyze trends in depressive symptoms in order to address this substantial mental health care issue. This study aims to determine US trends in self-reported depressive symptoms between 2005-2016.

Theoretical Framework:

Bronfenbrenner's Ecological Systems Theory [6] provides the framework for exploring national trends in depression that may be influenced at the exosystem level. This theory will guide future implications for intervention and research.

Methods:

We examined data from the National Health and Nutrition Examination Survey (NHANES) from 2005-2016 [7]. Depressive symptoms were assessed using the 9-item Patient Health Questionnaire (PHQ9), with a total score ≥ 10 indicating greater severity.

Results:

A total of 31,191 individuals contributed PHQ9 data from 2005-2016. Mean PHQ9 score increased from 2.7 to 3.2 over this time period. The absolute proportion of individuals with total PHQ9 score ≥ 10 increased from 6.2% to 8.1% (for a relative increase of 31%). After adjustment for participant demographic characteristics and comorbid conditions, the odds ratio for high PHQ9 score at the end vs. the beginning of the study interval was 1.30 (95% confidence interval 1.10-1.54). The individual items with the largest relative increases were anhedonia (52.4%), guilt (44.7%), movement (46.2%), and self-harm (44.4%).

Implications for psychiatric-mental health nursing practice:

There were sizeable increases in the prevalence of depressive symptoms in the United States over an 11-year period. This increase suggests that continued efforts should be made by nurses to provide holistic health care in all practice areas.

Implications for future research:

Further work is needed to understand the reasons for and implications of this increase.

References:

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Table 1. Characteristics of NHANES Participants, 2005-2016												
	2005-2006		2007-2008		2009-2010		2011-2012		2013-2014		2015-2016	
	n	%	n	%	n	%	n	%	n	%	n	%
Gender												
Male	2312	48.2%	2687	49.6%	2759	49.7%	2483	50.4%	2585	48.1%	2508	48.9%
Female	2487	51.8%	2728	50.4%	2787	50.3%	2442	49.6%	2787	51.9%	2626	51.1%
Age, years												
18-39	2164	45.1%	1924	35.5%	2007	36.2%	1893	38.4%	2025	37.7%	1867	36.4%
40-59	1324	27.6%	1652	30.5%	1787	32.2%	1487	30.2%	1705	31.7%	1602	31.2%
60-79	1038	21.6%	1521	28.1%	1431	25.8%	1272	25.8%	1360	25.3%	1369	26.7%
80+	273	5.7%	318	5.9%	321	5.8%	273	5.5%	282	5.2%	296	5.8%
Race/Ethnicity												
Non-Hispanic White	2311	48.2%	2532	46.8%	2683	48.4%	1836	37.3%	2315	43.1%	1710	33.3%
Non-Hispanic Black	1143	23.8%	1123	20.7%	986	17.8%	1319	26.8%	1087	20.2%	1096	21.3%
Hispanic	1161	24.2%	1569	29.0%	1606	29.0%	987	20.0%	1234	23.0%	1590	31.0%
Other Race	184	3.8%	191	3.5%	271	4.9%	783	15.9%	736	13.7%	738	14.4%
Number of Comorbidities												
0	2908	60.6%	2936	54.2%	3131	56.5%	2846	57.8%	3030	56.4%	2846	55.4%
1	1125	23.4%	1371	25.3%	1382	24.9%	1149	23.3%	1308	24.3%	1184	23.1%
2	454	9.5%	613	11.3%	591	10.7%	514	10.4%	594	11.1%	633	12.3%
3	176	3.7%	291	5.4%	256	4.6%	232	4.7%	251	4.7%	248	4.8%
4+	136	2.8%	204	3.7%	186	3.4%	184	3.7%	189	3.6%	223	4.4%

Table 2. Change in total PHQ9 scores over time, NHANES 2005-2016

	2005-2006		2007-2008		2009-2010		2011-2012		2013-2014		2015-2016		Relative change (2015/16 vs. 2005/06)	
	Mean Score	Score ≥ 10	Mean Score	Score ≥ 10	Mean Score	Score ≥ 10	Mean Score	Score ≥ 10	Mean Score	Score ≥ 10	Mean Score	Score ≥ 10	Mean Score	Score ≥ 10
All participants	2.7	6.2%	3.3	9.7%	3.3	9.4%	3.2	8.9%	3.3	9.5%	3.2	8.1%	18.5%	30.6%
Gender														
Male	2.3	5.2%	2.7	6.8%	2.7	6.7%	2.6	6.4%	2.6	6.5%	2.8	6.5%	21.7%	25.0%
Female	3.1	7.2%	3.9	9.7%	3.9	12.1%	3.7	11.5%	3.9	12.3%	3.6	9.6%	16.1%	33.3%
Age, years														
18-39	2.8	5.5%	3.3	9.9%	3.5	9.2%	3.1	7.7%	3.0	7.5%	3.2	7.6%	14.3%	38.2%
40-59	3.1	9.0%	3.8	12.5%	3.8	12.3%	3.6	11.6%	3.4	10.7%	3.4	8.6%	9.7%	-4.4%
60-79	2.3	4.9%	2.9	7.7%	2.8	7.2%	2.9	8.4%	3.6	11.2%	3.2	8.6%	39.1%	75.5%
80+	2.2	2.9%	2.6	2.8%	2.1	5.0%	2.6	5.5%	3.4	9.2%	3.2	6.1%	45.5%	110.3%
Race/Ethnicity														
Non-Hispanic White	2.6	5.1%	3.3	9.0%	3.2	8.3%	3.2	9.6%	3.4	9.7%	3.4	8.9%	30.8%	74.5%
Non-Hispanic Black	2.9	8.3%	3.2	9.7%	3.4	10.0%	3.2	8.8%	3.4	9.9%	3.2	7.7%	10.3%	-7.2%
Hispanic	2.8	6.4%	3.4	10.8%	3.6	11.0%	3.5	10.9%	3.5	10.9%	3.4	8.7%	21.4%	35.9%
Other Race	2.9	5.4%	3.0	8.4%	3.3	8.9%	2.5	5.1%	2.7	6.0%	2.7	5.4%	-6.9%	0.0%
Number of Comorbidities														
0	2.4	4.2%	2.5	5.9%	2.9	7.1%	2.6	6.1%	2.5	5.3%	2.6	5.2%	8.3%	23.8%
1	2.9	7.4%	3.7	11.2%	3.4	8.9%	3.1	8.8%	3.7	11.1%	3.4	8.9%	17.2%	20.3%
2	3.4	9.5%	4.3	15.0%	3.9	13.0%	4.3	14.4%	4.5	16.0%	4.2	11.9%	23.5%	25.3%
3	3.9	15.9%	5.2	18.6%	5.1	21.1%	5.2	18.5%	5.3	20.3%	4.6	12.9%	17.9%	-18.9%
4+	5.2	16.2%	6.2	24.0%	6.3	25.8%	6.4	26.1%	7.2	31.2%	6.7	25.1%	28.8%	54.9%

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Symptom	2005-2006 n=4799		2007-2008 n= 5415		2009-2010 n= 5546		2011-2012 n= 4925		2013-2014 n= 5372		2015-2016 n= 5134		Relative Change (2015/16 vs. 2005/06)	
	Mean Score	Score 2-3	Mean Score	Score 2-3	Mean Score	Score 2-3	Mean Score	Score 2-3	Mean Score	Score 2-3	Mean Score	Score 2-3	Mean Score	Score 2-3
1. Anhedonia	0.29	6.3%	0.35	7.4%	0.39	8.6%	0.37	8.4%	0.41	9.9%	0.40	9.6%	37.9%	52.4%
2. Feel depressed	0.30	6.1%	0.38	8.0%	0.37	8.1%	0.35	7.4%	0.36	7.7%	0.34	7.2%	13.3%	18.0%
3. Sleep disturbance	0.54	12.5%	0.68	17.2%	0.66	17.0%	0.61	15.1%	0.62	15.8%	0.61	15.0%	13.0%	20.0%
4. Fatigue	0.71	14.4%	0.77	17.5%	0.74	16.5%	0.71	15.6%	0.77	17.0%	0.78	17.5%	9.9%	21.5%
5. Appetite	0.31	6.8%	0.38	9.4%	0.40	9.5%	0.38	9.2%	0.39	9.7%	0.40	9.3%	29.0%	36.8%
6. Guilt/ worthlessness	0.20	3.8%	0.28	6.2%	0.27	5.8%	0.27	6.1%	0.27	6.0%	0.24	5.5%	20.0%	44.7%
7. Concentration	0.22	4.5%	0.26	5.8%	0.28	6.1%	0.26	6.2%	0.29	7.1%	0.26	6.1%	18.2%	35.6%
8. Hypoactivity/ Hyperactivity	0.13	2.6%	0.17	4.0%	0.18	4.0%	0.18	4.4%	0.18	4.4%	0.16	3.8%	23.1%	46.2%
9. Self-harm	0.05	0.9%	0.07	1.3%	0.05	1.1%	0.06	1.4%	0.05	1.2%	0.06	1.3%	20.0%	44.4%

Table 3. Change in specific PHQ9 symptoms over time, NHANES 2005-2016