

Supplementary Online Content

Xiang AH, Martinez MP, Chow T, et al. Depression and anxiety among US children and young adults. *JAMA Netw Open*. 2024;7(10):e2436906.
doi:10.1001/jamanetworkopen.2024.36906

eTable 1. ICD-10 Codes Used for Depression and Anxiety

eTable 2. Incidence of Depression (per 100 Person-Years) by Subgroups

eTable 3. Prevalence of Depression (per 100 Person-Years) by Subgroups

eTable 4. Incidence of Anxiety Without Depression (per 100 Person-Years) by Subgroups

eTable 5. Prevalence of Anxiety Without Depression (per 100 Person-Years) by Subgroups

eTable 6. Difference in Deviance of the Full Model and 1 Covariate Removed, by Calendar Year

eTable 7. Associations Between Each Covariate and Outcome Using the Poisson Regression

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. ICD-10 Codes Used for Depression and Anxiety

Depression	
ICD 10 codes	Definition
F32.9	Major depressive disorder, single episode, unspecified
F32.0	Major depressive disorder, single episode, mild
F32.1	Major depressive disorder, single episode, moderate
F32.2	Major depressive disorder, single episode, severe without psychotic features
F32.3	Major depressive disorder, single episode, severe with psychotic features
F33.9	Major depressive disorder, recurrent, unspecified
F33.0	Major depressive disorder, recurrent, mild
F33.1	Major depressive disorder, recurrent, moderate
F33.2	Major depressive disorder, recurrent severe without psychotic features
F33.3	Major depressive disorder, recurrent, severe with psychotic symptoms
F34.1	Dysthymic disorder
Anxiety	
ICD 10 codes	Definition
F06.4	Anxiety disorder due to known physiological condition
F40.00	Agoraphobia, unspecified
F40.01	Agoraphobia with panic disorder
F40.02	Agoraphobia without panic disorder
F40.10	Social phobia, unspecified
F40.11	Social phobia, generalized
F40.210	Arachnophobia
F40.218	Other animal type phobia
F40.220	Fear of thunderstorms
F40.228	Other natural environment type phobia
F40.230	Fear of blood
F40.231	Fear of injections and transfusions
F40.232	Fear of other medical care
F40.233	Fear of injury
F40.240	Claustrophobia
F40.241	Acrophobia
F40.242	Fear of bridges
F40.243	Fear of flying
F40.248	Other situational type phobia
F40.290	Androphobia
F40.291	Gynephobia
F40.298	Other specified phobia
F40.8	Other phobic anxiety disorders
F40.9	Phobic anxiety disorder, unspecified
F41.0	Panic disorder [episodic paroxysmal anxiety]
F41.1	Generalized anxiety disorder

F41.3	Other mixed anxiety disorders
F41.8	Other specified anxiety disorders
F41.9	Anxiety disorder, unspecified
F93.8	Other childhood emotional disorders

eTable 2. Incidence of Depression (per 100 Person-Years) by Subgroups

Calendar Year N (%)	By Calendar Year				
	2017 N=1,050,016	2018 N=1,053,974	2019 N=1,050,852	2020 N=1,039,305	2021 N=1,028,470
Age (years) (%) *					
Overall	1.35	1.58	1.76	1.84	2.10
5-10.9	0.15	0.19	0.23	0.23	0.25
11-13.9	1.22	1.44	1.56	1.73	2.02
14-17.9	2.29	2.61	2.88	2.91	3.25
18-22.9	2.02	2.39	2.75	2.89	3.38
Sex (%)					
Female	1.79	2.07	2.36	2.63	3.07
Male	0.95	1.12	1.21	1.10	1.21
Race and Ethnicity (%)					
Hispanic	1.33	1.58	1.75	1.82	2.15
White	1.79	2.00	2.27	2.35	2.54
Black	1.35	1.54	1.75	1.85	2.05
Asian	0.97	1.16	1.36	1.30	1.72
Pacific Islander	1.12	1.18	1.30	1.50	1.71
Native American or Alaskan	1.72	1.95	2.05	2.02	2.71
Multiple	1.88	2.04	2.21	2.47	2.28
Other	1.52	1.59	1.73	2.14	2.39
Unknown	0.48	0.72	0.90	1.10	1.33
Estimated Income (%)					
\$0-50,000	1.23	1.41	1.60	1.58	1.88
\$50,000-100,000	1.39	1.61	1.77	1.83	2.12
>=\$100,000	1.45	1.68	1.90	2.01	2.16

Missing	1.15	1.61	1.50	2.17	2.38
Weight Status (%)					
Underweight	1.51	1.92	2.10	2.24	2.90
Normal	1.43	1.62	1.84	1.97	2.38
Overweight	1.59	1.91	2.22	2.19	2.66
Obese	1.72	2.02	2.21	2.20	2.71
Missing	0.29	0.38	0.47	0.71	0.96
Comorbidity the Year Prior (%)					
No	1.31	1.52	1.72	1.80	2.05
Yes	1.85	2.11	2.28	2.27	2.83

eTable 3. Prevalence of Depression (per 100 Person-Years) by Subgroups

Calendar Year N (%)	By Calendar Year				
	2017 N=1,108,267	2018 N=1,113,857	2019 N=1,113,939	2020 N=1,106,684	2021 N=1,100,190
Age (years) (%) *					
Overall	2.55	2.92	3.27	3.53	4.08
5-10.9	0.19	0.23	0.28	0.29	0.31
11-13.9	1.67	1.94	2.17	2.46	2.91
14-17.9	4.15	4.67	5.20	5.52	6.23
18-22.9	4.13	4.79	5.42	5.87	6.88
Sex (%)					
Female	3.49	3.97	4.49	5.03	6.02
Male	1.66	1.9	2.1	2.08	2.22
Race and Ethnicity (%)					
Hispanic	2.48	2.88	3.22	3.49	4.13
White	3.61	3.97	4.43	4.81	5.35
Black	2.41	2.80	3.19	3.42	3.98
Asian	1.71	2.01	2.45	2.49	3.21
Pacific Islander	1.87	2.10	2.42	2.61	3.04
Native American or Alaskan	3.11	3.80	3.85	4.45	5.94
Multiple	3.54	4.03	4.33	4.70	5.13
Other	2.19	2.53	2.89	3.33	4.06
Unknown	0.69	1.01	1.27	1.57	1.99
Estimated Income (%)					
\$0-50,000	2.28	2.52	2.81	2.95	3.49
\$50,000-100,000	2.63	2.99	3.30	3.50	4.04
>=\$100,000	2.78	3.17	3.63	3.91	4.42
Missing	2.49	3.29	3.57	5.35	6.18

Weight Status (%)					
Underweight	2.95	3.54	3.97	4.33	5.72
Normal	2.57	2.91	3.32	3.67	4.53
Overweight	3.06	3.49	4.11	4.26	5.26
Obese	3.54	4.00	4.40	4.59	5.49
Missing	0.43	0.56	0.73	1.13	1.74
Comorbidity the Year Prior (%)					
No	2.37	2.71	3.06	3.34	3.89
Yes	4.48	4.94	5.39	5.44	6.62

eTable 4. Incidence of Anxiety Without Depression (per 100 Person-Years) by Subgroups

Calendar Year N (%)	By Calendar Year				
	2017 N=997,541	2018 N=995,015	2019 N=984,279	2020 N=965,864	2021 N=950,427
Age (years)*					
Overall (%)	1.77	2.03	2.10	1.93	2.32
Age group (%)					
5-10.9	1.27	1.35	1.51	1.31	1.60
11-13.9	1.60	1.88	1.92	1.78	2.43
14-17.9	2.01	2.48	2.52	2.29	2.74
18-22.9	2.25	2.56	2.61	2.49	2.82
Sex (%)					
Female	2.13	2.49	2.52	2.44	3.04
Male	1.44	1.60	1.72	1.46	1.67
Race and Ethnicity (%)					
Hispanic	1.83	2.10	2.22	2.04	2.47
White	2.49	2.82	2.85	2.58	3.07
Black	1.28	1.42	1.60	1.49	1.79
Asian	1.01	1.23	1.28	1.16	1.56
Pacific Islander	1.06	1.19	1.05	1.11	1.62
Native American or Alaskan	2.39	1.76	2.21	1.82	2.57
Multiple	2.16	2.08	2.33	1.98	2.57
Other	1.74	2.10	1.97	2.04	2.70
Unknown	0.62	0.91	0.97	1.04	1.28
Estimated Income (%)					
\$0-50,000	1.56	1.75	1.82	1.74	2.00
\$50,000-100,000	1.81	2.05	2.12	1.88	2.28
≥\$100,000	2.04	2.30	2.34	2.15	2.56

Missing	1.32	1.51	1.50	1.75	2.33
Weight Status (%)					
Underweight	2.61	2.75	2.78	2.52	3.57
Normal	2.03	2.32	2.43	2.26	2.97
Overweight	2.03	2.31	2.47	2.30	2.94
Obese	1.97	2.22	2.37	2.09	2.87
Missing	0.18	0.26	0.35	0.53	0.72
Comorbidity the Year Prior (%)					
No	1.71	1.96	2.04	1.86	2.26
Yes	2.44	2.77	2.78	2.71	3.19

eTable 5. Prevalence of Anxiety Without Depression (per 100 Person-Years) by Subgroups

Calendar Year N (%)	By Calendar Year				
	2017 N=1,108,267	2018 N=1,113,857	2019 N=1,113,939	2020 N=1,106,684	2021 N=1,100,190
Age (years) (%) *					
Overall	3.13	3.51	3.75	3.61	4.22
5-10.9	1.87	2.02	2.25	2.10	2.44
11-13.9	2.80	3.21	3.44	3.29	4.09
14-17.9	3.63	4.26	4.52	4.35	5.10
18-22.9	4.15	4.56	4.83	4.74	5.41
Sex (%)					
Female	3.71	4.22	4.44	4.42	5.35
Male	2.57	2.82	3.09	2.83	3.13
Race and Ethnicity (%)					
Hispanic	3.08	3.51	3.78	3.64	4.33
White	4.74	5.19	5.52	5.32	6.12
Black	2.16	2.39	2.62	2.63	3.08
Asian	1.69	1.98	2.17	2.11	2.66
Pacific Islander	1.83	2.06	1.92	2.11	2.64
Native American or Alaskan	4.16	3.90	4.10	3.57	4.67
Multiple	3.71	3.92	4.51	4.01	4.85
Other	2.67	3.00	3.09	3.30	4.15
Unknown	0.92	1.25	1.41	1.55	1.86
Estimated Income (%)					
\$0-50,000	2.56	2.85	2.97	2.94	3.42
\$50,000-100,000	3.24	3.52	3.74	3.51	4.07
>=\$100,000	3.83	4.23	4.47	4.23	4.84
Missing	2.45	2.33	3.30	3.16	4.55

Weight Status (%)					
Underweight	4.55	4.78	5.19	5.01	6.60
Normal	3.49	3.93	4.24	4.14	5.26
Overweight	3.63	3.97	4.38	4.29	5.31
Obese	3.54	3.95	4.31	4.04	5.11
Missing	0.31	0.42	0.54	0.82	1.34
Comorbidity the Year Prior (%)					
No	2.95	3.3	3.55	3.41	4.04
Yes	4.97	5.54	5.78	5.60	6.68

eTable 6. Difference in Deviance of the Full Model and 1 Covariate Removed, by Calendar Year

<i>Model</i>	Difference in Deviance, by Calendar Year				
	2017	2018	2019	2020	2021
<i>Incidence of Depression</i>					
Covariate Removed					
Comorbidity	132.4	129.0	90.6	80.5	85.1
Obesity	1700.2	1955.3	2335.5	1847.3	2939.3
Estimated Income	11.2	24.1	16.0	53.6	19.8
Race/Ethnicity	499.9	407.3	472.3	529.6	358.5
Sex	1195.0	1339.3	1725.3	3128.7	3996.4
Age	8533.7	9669.9	10807.3	11189.3	13160.9
<i>Prevalence of Depression</i>					
Covariate Removed					
Comorbidity	1026.1	992.2	863.0	718.2	568.8
Obesity	3655.9	3997.9	4694.7	4172.2	5950.8
Estimated Income	37.8	84.4	106.0	154.8	124.2
Race/Ethnicity	1461.8	1284.8	1301.1	1513.5	1352.7
Sex	3001.5	3385.1	4017.9	5892.6	8442.4
Age	18925.3	21413.8	23842.5	25655.6	29988.2
<i>Incidence of Anxiety without Depression</i>					
Covariate Removed					
Comorbidity	151.4	171.8	103.2	187.7	72.7
Obesity	3058.3	3272.0	3431.5	2518.9	4694.4
Estimated Income	45.7	53.2	59.9	48.0	65.4
Race/Ethnicity	1058.2	1105.9	1030.3	895.0	867.6
Sex	533.9	797.1	602.4	1070.4	1683.9
Age	1505.1	2090.5	1742.5	1980.4	2040.7

Prevalence of Anxiety without Depression

Covariate Removed

Comorbidity	747.9	831.2	675.2	702.9	478.7
Obesity	5389.9	5566.7	6440.2	5337.1	8246.8
Estimated Income	230.8	263.9	324.8	222.7	234.3
Race/Ethnicity	2741.6	2767.3	2896.7	2659.0	2834.6
Sex	801.8	1165.6	951.7	1481.8	2446.7
Age	4160.2	4872.9	4756.5	5076.9	5658.2

eTable 7. Associations Between Each Covariate and Outcome Using Poisson Regression

Outcome	Covariate	2017			2018			2019			2020			2021		
		DF	Chi-Square	P-value	DF	Chi-Square	P-value	DF	Chi-Square	P-value	DF	Chi-Square	P-value	DF	Chi-Square	P-value
Depression Incidence	Age Groups	3	8533.69	<.001	3	9669.87	<.001	3	10807.3	<.001	3	11189.3	<.001	3	13160.9	<.001
	Gender	1	1195.01	<.001	1	1339.3	<.001	1	1725.26	<.001	1	3128.66	<.001	1	3996.39	<.001
	Race and Ethnicity	8	499.93	<.001	8	407.27	<.001	8	472.34	<.001	8	529.63	<.001	8	358.51	<.001
	Income	3	11.22	0.0106	3	24.06	<.001	3	16.02	0.0011	3	53.58	<.001	3	19.77	<.001
	Weight Status	4	1700.17	<.001	4	1955.27	<.001	4	2335.48	<.001	4	1847.34	<.001	4	2939.26	<.001
	History of Comorbidity	1	132.35	<.001	1	129.01	<.001	1	90.58	<.001	1	80.5	<.001	1	85.14	<.001
Anxiety Incidence	Age Groups	3	1505.07	<.001	3	2090.47	<.001	3	1742.47	<.001	3	1980.37	<.001	3	2040.73	<.001
	Gender	1	533.94	<.001	1	797.09	<.001	1	602.42	<.001	1	1070.42	<.001	1	1683.91	<.001
	Race and Ethnicity	8	1058.24	<.001	8	1105.87	<.001	8	1030.32	<.001	8	895.02	<.001	8	867.62	<.001
	Income	3	45.67	<.001	3	53.16	<.001	3	59.92	<.001	3	48.01	<.001	3	65.4	<.001
	Weight Status	4	3058.29	<.001	4	3271.98	<.001	4	3431.53	<.001	4	2518.95	<.001	4	4694.42	<.001
	History of Comorbidity	1	151.39	<.001	1	171.81	<.001	1	103.18	<.001	1	187.69	<.001	1	72.74	<.001
Depression Prevalence	Age Groups	3	18925.3	<.001	3	21413.8	<.001	3	23842.5	<.001	3	25655.6	<.001	3	29988.2	<.001
	Gender	1	3001.48	<.001	1	3385.11	<.001	1	4017.95	<.001	1	5892.59	<.001	1	8442.39	<.001
	Race and Ethnicity	8	1461.81	<.001	8	1284.81	<.001	8	1301.12	<.001	8	1513.53	<.001	8	1352.73	<.001
	Income	3	37.76	<.001	3	84.35	<.001	3	105.97	<.001	3	154.77	<.001	3	124.16	<.001

Anxiety Prevalence	Weight Status	4	3655.87	<.001	4	3997.85	<.001	4	4694.69	<.001	4	4172.21	<.001	4	5950.75	<.001
	History of Comorbidity	1	1026.09	<.001	1	992.2	<.001	1	863.03	<.001	1	718.17	<.001	1	568.75	<.001
	Age Groups	3	4160.2	<.001	3	4872.9	<.001	3	4756.54	<.001	3	5076.91	<.001	3	5658.17	<.001
	Gender	1	801.82	<.001	1	1165.59	<.001	1	951.65	<.001	1	1481.85	<.001	1	2446.67	<.001
	Race and Ethnicity	8	2741.62	<.001	8	2767.29	<.001	8	2896.73	<.001	8	2658.96	<.001	8	2834.56	<.001
	Income	3	230.83	<.001	3	263.86	<.001	3	324.82	<.001	3	222.69	<.001	3	234.35	<.001
	Weight Status	4	5389.93	<.001	4	5566.71	<.001	4	6440.17	<.001	4	5337.15	<.001	4	8246.79	<.001
	History of Comorbidity	1	747.94	<.001	1	831.21	<.001	1	675.18	<.001	1	702.94	<.001	1	478.66	<.001

*Income= Estimated household income ; Chi-square was based on the likelihood ratio test