

## Supplemental Material\*

Olfson M, McClellan C, Zuvekas SH, et al. Trends in psychological distress and outpatient mental health care of adults during the COVID-19 era. *Ann Intern Med.* 6 February 2024. [Epub ahead of print]. doi:10.7326/M23-2824

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\* This supplemental material was provided by the authors to give readers further details on their article. The material was not copyedited.

Supplement Table 1. ICD-10-CM codes definitions of mental health condition groups	
Mental disorders and conditions	ICD-10-CM Codes
Mood disorders	F30, F31, F32, F33, F34.0, F34.1, F34.8, F34.9, F39, O90.6
Depression disorders	F32, F33, F34.1
Anxiety disorders	F40, F41, F93.0, F94.0
Trauma and stressor disorders	F43, F44, F94.1, F94.2
ADHD and disruptive behavior disorders	F63, F90, F91, R41.480
Other mental health disorders	F10-F69, F90-F99, not included above
Mental health-related conditions	G47.00, G47.09, G47.9, O90.6, R41.840, R45, R53.8, Z71.41, Z71.51, Z73.3, Z73.4, Z73.89, Z73.9,
Any mental disorder included all mental disorders and conditions listed above. Also includes visits to a psychiatrist, psychologist, social worker, or mental health counselor without listed codes or one or more psychotropic medication for a mental health condition. ADHD denotes attention-deficit/hyperactivity disorder.	

Supplement Table 2. Psychotropic medication classes and medications	
Medication classes	Medications
Stimulants & ADHD Treatments	Amphetamine, Dexmethylphenidate, Dextroamphetamine, Dextroamphetamine-amphetamine, Lisdexamfetamine, Methamphetamine, Methylphenidate, Atomoxetine, *Clonidine, *Guanfacine
Mood stabilizers	Carbamazepine, Divalproex sodium, Oxcarbazepine, Sodium valproate, Valproic acid, Lithium, Gabapentin, *Lacosamide, *Levetiracetam,*Pregabalin, *Tiagabine, *Topiramate, *Zonisamide
Antidepressants	Citalopram, Escitalopram, Fluoxetine, Fluvoxamine, Paroxetine, Sertraline, Desvenlafaxine, Duloxetine, Venlafaxine, Mirtazapine, Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Maprotiline, Nortriptyline, Protriptyline, Phenelzine, Tranylcypromine, Isocarboxazid, Trazodone, Bupropion, Milnacipran, Vilazodone
Anxiolytics/Hypnotics	Alprazolam, Bromazepam, Chlordiazepoxide, Clonazepam, *Clobazam, Clorazepate, *Diazepam, Estazolam, Flurazepam, Halazepam, *Lorazepam, *Midazolam, Oxazepam, Temazepam, Triazolam, Eszopiclone, Zaleplon, Zolpidem, Zopiclone, Buspirone, Ramelteon, Suvorexant, Choral hydrate, Ethchlorvynol, Meprobamate, *Amobarbital, *Butobarbital, *Mephobarbital, *Secobarbital.
Antipsychotic medications	Acetophenazine, Chlorpromazine, Chlorprothixene, Fluphenazine, Haloperidol, Loxapine, Mesoridazine, Molindone, Perphenazine, Pimozide, Promazine, Thiothixene, Trifluoperazine, Triflupromazine, Aripiprazole, Asenapine, Iloperidone, Lurasidone, Olanzapine, Quetiapine, Risperidone, Paliperidone, Ziprasidone, Clozapine
*Because these medications are also widely used for the treatment of general medical conditions, they also required a related mental health condition code to be defined as psychotropic medications.	

Supplement Table 3. Trends in psychological distress among adults, total and stratified by age and sex groups						
Level of Psychological Distress	Level of Psychological Distress* per 100 Adults				Adjusted Difference [95% CI]†	Linear Trends [95% CI]‡
	2018 %	2019 %	2020 %	2021 %		
Total	N <sub>1</sub> =19,568	N <sub>2</sub> =17,853	N <sub>3</sub> =14,473	N <sub>4</sub> =15,422		
1. Serious psychological distress	3.5	3.5	4.1	4.2	0.7 [0.1, 1.3]	2.7 [0.8, 4.6]
2. Less serious psychological distress	56.1	56.9	60.2	58.6	2.5 [0.8, 4.2]	10.9 [5.2, 16.5]
3. No psychological distress	40.4	39.5	35.7	37.2	-3.2 [-5.0, -1.5]	-13.6 [-19.3, -7.8]
Age, 18-44 years	N <sub>1</sub> =8,029	N <sub>2</sub> =6,978	N <sub>3</sub> =4,861	N <sub>4</sub> =5,104		
1. Serious psychological distress	3.5	3.3	4.5	4.8	1.3 [0.4, 2.3]	5.1 [2.0, 8.2]
2. Less serious psychological distress	56.6	57.8	61.8	60.7	4.1 [1.4, 6.8]	16.3 [7.7, 24.9]
3. No psychological distress	40.0	38.8	33.8	34.6	-5.4 [-8.1, -2.7]	-21.4 [-30.1, -12.7]
Age, 45-64 years	N <sub>1</sub> =6,549	N <sub>2</sub> =6,042	N <sub>3</sub> =4,918	N <sub>4</sub> =5,045		
1. Serious psychological distress	3.8	4.1	4.2	4.0	0.2 [-0.6, 0.9]	0.6 [-1.8, 3.0]
2. Less serious psychological distress	54.9	54.9	60.1	57.6	2.7 [0.0, 5.4]	13.2 [4.4, 22.1]
3. No psychological distress	41.2	41.0	35.8	38.4	-2.9 [-5.5, -0.2]	-13.9 [-22.6, -5.1]
Age, ≥65 years	N <sub>1</sub> =4,990	N <sub>2</sub> =4,833	N <sub>3</sub> =4,694	N <sub>4</sub> =5,273		
1. Serious psychological distress	3.1	3.1	3.4	3.3	0.2 [-0.6, 1.0]	0.9 [-1.8, 3.5]
2. Less serious psychological distress	57.1	58.2	57.2	56.0	-1.1 [-3.7, 1.5]	-4.2 [-12.5, 4.1]
3. No psychological distress	39.8	38.7	39.4	40.7	0.9 [-1.7, 3.5]	3.4 [-4.9, 11.6]
Sex, Male	N <sub>1</sub> =9,005	N <sub>2</sub> =8,225	N <sub>3</sub> =6,511	N <sub>4</sub> =6,938		
1. Serious psychological distress	2.9	2.9	3.2	3.8	0.9 [0.1, 1.7]	3.1 [0.5, 5.8]
2. Less serious psychological distress	53.4	54.1	56.2	54.9	1.5 [-0.7, 3.7]	6.6 [-0.5, 13.8]
3. No psychological distress	43.7	43.0	40.6	41.3	-2.4 [-4.7, -0.1]	-9.8 [-17.3, -2.2]
Sex, Female	N <sub>1</sub> =10,563	N <sub>2</sub> =9,628	N <sub>3</sub> =7,962	N <sub>4</sub> =8,484		
1. Serious psychological distress	4.1	4.2	5.0	4.6	0.5 [-0.2, 1.2]	2.3 [0.0, 4.6]
2. Less serious psychological distress	58.7	59.6	64.0	62.1	3.5 [1.4, 5.5]	14.8 [8.3, 21.3]
3. No psychological distress	37.2	36.2	31.1	33.3	-4.0 [-5.9, -2.0]	-17.1 [-23.3, -10.9]
Data from Medical Expenditure Panel Surveys and presented as annualized percentages.						
* Serious psychological distress (K6≥13); Less serious psychological distress (K6=1 to 12); No psychological distress (K6=0)						
† Age and sex adjusted differences in the levels of distress between 2021 and 2018 (logistic model).						
‡ Results of linear trends models (2018-2021).						
© Z-test p-values test whether changes in distress level differed across strata controlling for age and sex across strata as well as across time.						

Supplement Table 4. Trends in the percentage of adults receiving outpatient mental health care, psychotherapy, and psychotropic medications in the United States, 2018-2021								
Variable	2018 (N= 22,227) %	2019 (N=21,305) %	2020 (N=21,138) %	2021 (N=21,988) %	Age and Sex Adjusted Difference* (95% CI)	Age and Sex Adjusted Linear Trend‡ (95% CI)	Age, Sex, and Distress Adjusted Difference† (95% CI)	Age, Sex, and Distress Adjusted Linear Trend‡ (95% CI)
Any outpatient mental health care	11.2	12.3	12.2	12.4	1.3 [0.4, 2.1]	3.8 [1.0, 6.5]	0.9 [0.0, 1.9]	2.7 [-0.3, 5.7]
Any psychotherapy	6.5	7.9	8.0	8.5	2.1 [1.4, 2.8]	6.3 [4.0, 8.5]	1.8 [1.0, 2.5]	5.4 [3.0, 7.8]
Any psychotropic medication	17.3	17.4	17.4	17.6	0.3 [-0.7, 1.2]	0.7 [-2.5, 3.9]	0.2 [-0.8, 1.2]	0.4 [-3.1, 3.8]
Antidepressants	12.9	13.5	13.3	13.6	0.7 [-0.1, 1.5]	1.9 [-0.8, 4.6]	1.0 [0.1, 1.9]	2.7 [-0.3, 5.7]
Anxiolytics/hypnotics	5.9	5.6	5.6	5.4	-0.5 [-1.0, -0.1]	-1.7 [-3.3, -0.1]	-0.5 [-1.1, 0.0]	-1.7 [-3.6, 0.1]
Antipsychotics	2.0	2.0	2.0	2.0	0.0 [-0.3, 0.3]	0.1 [-1.0, 1.1]	-0.1 [-0.4, 0.2]	-0.4 [-1.4, 0.7]
Mood stabilizers§	1.2	1.3	1.3	1.3	0.1 [-0.2, 0.3]	0.2 [-0.5, 0.9]	0.1 [-0.2, 0.3]	0.1 [-0.7, 0.9]
Stimulants	2.0	1.8	1.9	2.3	0.3 [-0.1, 0.7]	1.1 [-0.2, 2.4]	0.0 [-0.4, 0.4]	-0.2 [-1.6, 1.2]
Data from Medical Expenditure Panel Surveys. Adjusted regressions comparing percentages with any outpatient mental health service, any psychotherapy, and any psychotropic medication in 2021 to 2018 (reference). Psychological distress based on Kessler 6 Scale.								
* Difference between 2021 and 2018 controlled for age and sex.								
† Difference between 2021 and 2018 controlled for age, sex, and level of psychological distress.								
‡ Results of linear trends models (2018-2021).								
§Excluding individuals with seizure disorders.								

Supplement Table 5. Trends in use of any outpatient mental health care by adults in the United States, 2018 to 2021

Variable	Rate of Use of Outpatient Mental Health Care per 100 Adults				Age and Sex Adjusted Differences* [95% CI]	Age and Sex Adjusted Linear Trend‡ [95% CI]	Age, Sex, and Distress Adjusted Differences† [95% CI]	Age, Sex, and Distress Adjusted Linear Trend‡ [95% CI]
	2018 %	2019 %	2020 %	2021 %				
Psychological distress								
Serious	46.5	45.0	43.5	40.4	-6.2 [-11.8, -0.5]	-19.4 [-37.5, -1.3]		
Less Serious	14.8	16.3	15.8	16.4	1.6 [0.2, 3.0]	4.4 [-0.1, 8.9]		
No Distress	4.1	4.4	4.5	4.3	0.6 [-0.4, 1.6]	1.4 [-1.6, 4.4]		
Age, years								
18-44	12.4	13.9	14.8	15.2	2.8 [1.4, 4.2]	9.4 [4.8, 14.1]	2.0 [0.4, 3.6]	6.9 [1.7, 12.1]
45-64	11.6	11.6	11.4	11.3	-0.2 [-1.4, 0.9]	-0.9 [-4.8, 3.0]	-0.4 [-1.8, 1.0]	-1.4 [-6.1, 3.3]
≥65	8.2	10.0	8.3	8.4	0.3 [-0.9, 1.4]	-0.9 [-4.6, 2.8]	0.4 [-0.8, 1.6]	-0.8 [-4.9, 3.3]
Sex								
Male	8.8	9.2	9.4	9.6	0.8 [-0.2, 1.8]	2.55 [-0.8, 5.9]	0.6 [-0.6, 1.8]	1.8 [-2.1, 5.6]
Female	13.5	15.2	14.9	15.1	1.7 [0.6, 2.8]	4.89 [1.2, 8.6]	1.0 [-0.2, 2.3]	2.8 [-1.3, 6.9]
Race/Ethnicity								
Black, non-Hispanic	7.9	8.9	8.7	9.2	1.3 [-0.4, 3.2]	3.8 [-2.1, 9.7]	2.5 [0.2, 4.8]	8.7 [1.1, 16.4]
Hispanic	7.3	8.1	7.8	8.2	0.9 [-0.5, 2.3]	2.5 [-2.0, 7.1]	1.8 [-0.1, 3.7]	5.6 [-0.3, 11.6]
Other, non-Hispanic	8.3	10.4	8.9	9.4	1.1 [-1.2, 3.3]	1.9 [-5.2, 8.9]	0.9 [-1.7, 3.5]	1.5 [-6.4, 9.4]
White, non-Hispanic	13.3	14.3	14.6	14.7	1.5 [0.3, 2.7]	4.9 [0.9, 8.8]	0.3 [-0.9, 1.5]	0.5 [-3.4, 4.3]
Education								
< High school graduate	10.1	10.5	9.5	10.0	-0.3 [-2.2, 1.5]	-2.2 [-8.1, 3.8]	-0.3 [-2.7, 2.2]	-2.4 [-10.4, 5.6]
High school graduate	11.0	11.6	11.1	11.0	0.1 [-0.8, 1.1]	0.0 [-3.1, 3.2]	-0.4 [-1.4, 0.6]	-1.7 [-5.0, 1.6]
College graduate	12.0	14.2	14.9	15.4	3.5 [2.0, 4.9]	11.2 [6.4, 15.9]	2.7 [1.2, 4.3]	8.4 [3.5, 13.3]
Marital status								
Married	8.4	10.2	10.3	10.1	1.8 [0.7, 2.9]	5.5 [1.8, 9.3]	1.1 [-0.2, 2.4]	3.6 [-0.7, 8.0]
Sep/Div/Wid	14.8	15.1	13.6	14.5	-0.2 [-1.8, 1.4]	-2.0 [-7.2, 3.4]	0.6 [-1.0, 2.2]	0.5 [-5.0, 6.1]
Not married	13.8	14.1	14.7	15.1	1.3 [-0.1, 2.7]	4.4 [-0.2, 9.1]	0.8 [-0.9, 2.5]	2.4 [-2.9, 7.7]
Income level [% FPL]								
<100	15.6	14.9	14.7	14.7	-0.6 [-2.5, 1.4]	-1.7 [-8.0, 4.6]	-0.4 [-2.4, 1.6]	-2.0 [-8.4, 4.5]
100-200	11.8	10.5	13.2	11.7	0.0 [-2.0, 2.0]	2.8 [-3.8, 9.4]	0.1 [-2.2, 2.4]	3.6 [-3.8, 11.0]
201-400	10.2	11.4	11.3	12.4	2.2 [0.9, 3.6]	6.7 [2.3, 11.2]	2.3 [0.6, 4.0]	7.1 [1.4, 12.8]
>400	10.4	12.6	11.8	11.9	1.6 [0.3, 2.9]	4.0 [-0.3, 8.3]	0.6 [-0.8, 1.9]	0.4 [-4.0, 4.8]

Employment								
Employed	10.1	11.2	12.0	12.5	2.3 [1.3, 3.3]	7.5 [4.3, 10.8]	1.5 [0.4, 2.7]	5.3 [1.6, 9.0]
Unemployed, ≤ 65 years	16.9	17.1	15.8	15.5	-1.3 [-3.0, 0.5]	-5.0 [-10.4, 0.5]	-0.8 [-2.6, 1.0]	-3.7 [-9.6, 2.1]
Unemployed, > 65 years	8.9	10.4	8.9	9.0	0.3 [-1.7, 2.2]	-1.4 [-7.8, 4.9]	0.4 [-1.3, 2.2]	-1.2 [-7.2, 4.7]
Health insurance								
Private, any	11.0	12.3	12.5	12.6	0.9 [-0.3, 2.0]	2.4 [-1.3, 6.0]	0.7 [-0.6, 1.9]	1.5 [-2.6, 5.5]
Public, any	13.2	14.1	12.8	12.6	-1.3 [-3.2, 0.7]	-5.4 [-11.5, 0.7]	0.2 [-1.6, 2.1]	-1.4 [-7.5, 4.6]
None	4.2	3.8	4.8	4.4	-0.6 [-2.4, 1.2]	-1.3 [-7.3, 4.7]	0.0 [-2.4, 2.5]	0.8 [-7.3, 9.0]
Residence								
Rural	11.6	11.9	11.4	12.0	0.6 [-2.3, 3.5]	1.3 [-8.7, 11.3]	0.4 [-1.7, 2.5]	2.3 [-5.6, 10.1]
Urban	11.2	12.3	12.3	12.5	1.3 [0.5, 2.2]	4.01 [1.2, 6.8]	0.9 [-0.1, 1.9]	2.4 [-0.8, 5.5]

Data from Medical Expenditure Panel Surveys presented as annualized percentages. Serious psychological distress based on Kessler 6 Scale score ≥ 13, less serious (1-12), and none (0). FPL denotes federal poverty level. Number of observations by year for Psychological Distress: (2018=19,568; 2019=17,853; 2020=14,473; 2021=15,422); number of observations for all other samples: (2018=22,227; 2019=21,305; 2020=21,138; 2021=21,988).

\*Estimates represent the age and sex adjusted differences of the outpatient mental health services in 2021 with 2018 as reference.

†Estimates represent the age, sex, and distress adjusted differences of the outpatient mental health services in 2021 with 2018 as reference.

‡ Results of linear trends models (2018-2021).

Supplement Table 6. Changes in the use of specific mental health services by level of psychological distress			
Variable	Use of Specific Mental Health Service		Adjusted Difference* (95% CI)
	2018-2019 %	2020-2021 %	
<b>Any psychotropic medications</b>			
Adults with serious psychological distress	55.9	49.6	-5.1 [-9.9, -0.4]
Adults with less serious or no psychological distress	16.2	16.5	0.2 [-0.5, 1.0]
<b>Antidepressants</b>			
Adults with serious psychological distress	45.3	40.3	-4.0 [-8.3, 0.4]
Adults with less serious or no psychological distress	12.3	12.9	0.5 [-0.1, 1.2]
<b>Anxiolytics/sedatives</b>			
Adults with serious psychological distress	26.4	19.1	-6.3 [-9.8, -2.9]
Adults with less serious or no psychological distress	5.1	5.1	-0.1 [-0.5, 0.3]
<b>Antipsychotics</b>			
Adults with serious psychological distress	13.0	10.19	-2.4 [-4.9, 0.2]
Adults less serious or no psychological distress	1.5	1.5	0.0 [-0.2, 0.2]
<b>Mood stabilizers</b>			
Adults with serious psychological distress	8.8	6.2	-2.5 [-4.6, -0.5]
Adults with less serious or no psychological distress	1.0	1.1	0.1 [-0.1, 0.3]
<b>Stimulants</b>			
Adults with serious psychological distress	6.2	6.7	0.2 [-1.9, 2.4]
Adults with less serious or no psychological distress	1.7	1.7	0.0 [-0.3, 0.3]
<b>Psychotherapy</b>			
Adults with serious psychological distress	30.4	31.8	1.0 [-2.8, 4.9]
Adults with less serious or no psychological distress	6.5	7.5	1.1 [0.5, 1.7]
Data from Medical Expenditure Panel Surveys presented as annualized percentages. Number of observations by biennium: (2018- 2019=37,421; 2020-2021=29,895) Serious psychological distress based on Kessler 6 Scale score $\geq$ 13. * Estimates represent the age and sex adjusted differences of the outpatient mental health services in 2020-21 with 2019-20 as reference. <sup>B</sup> Interaction <i>p</i> -values test whether changes in outpatient mental health service use over time differed across psychological distress strata.			

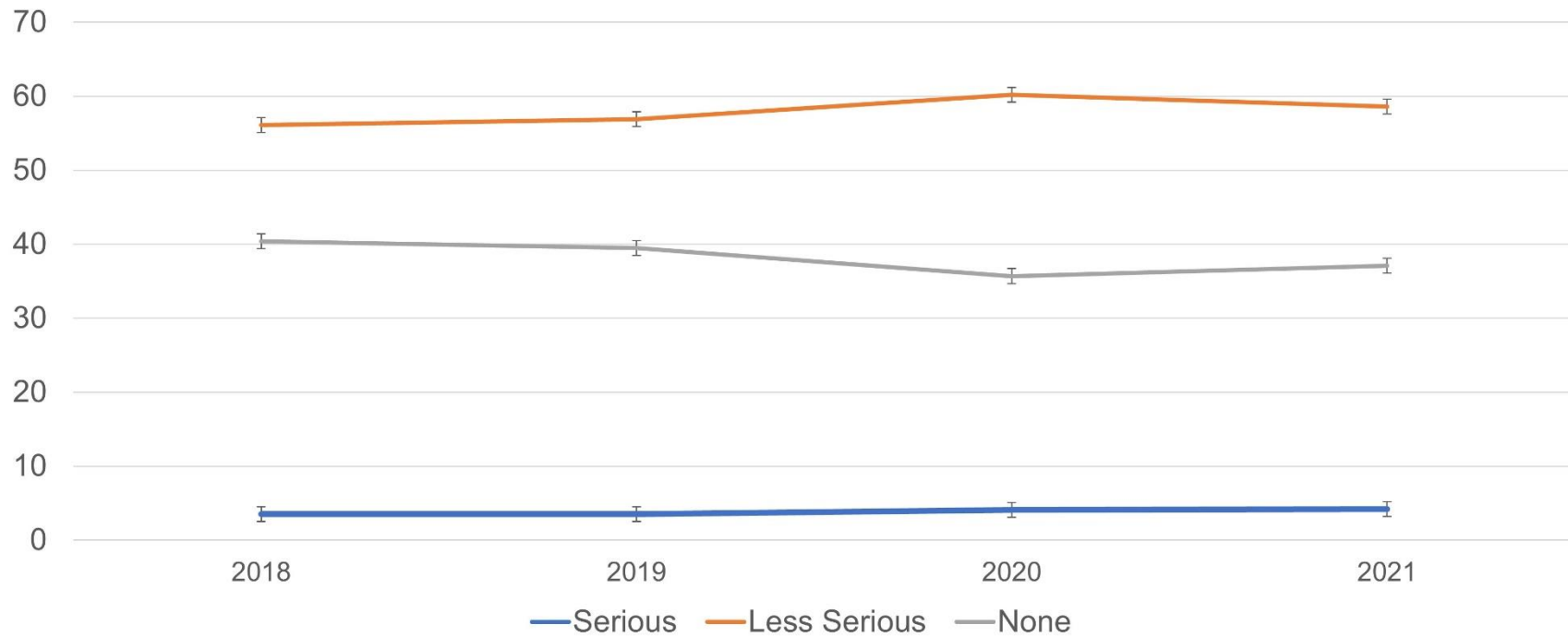


Supplement Table 7. Distribution of adults by outpatient mental health services modalities of adults, United States, 2021		
Group	Sample Size, N (%)	Percentage of Adults with Any Outpatient Mental Health Care (N=2,193)
No outpatient mental health care	15,385 (87.5)	
Any outpatient mental health care	2,193 (12.5)	100.0
Any In-person	1,366 (7.8)	73.6
In-person, only	836 (4.8)	49.7
In-person and telephone, only	218 (1.2)	8.3
In-person and video, only	256 (1.5)	13.0
In-person, telephone, and video	56 (0.3)	2.6
Any Telephone	650 (3.7)	21.4
Telephone, only	292 (1.7)	8.3
Telephone and in-person, only	218 (1.2)	8.3
Telephone and video, only	84 (0.5)	2.1
Telephone, in-person, and video	56 (0.3)	2.6
Any Video	847 (4.8)	33.4
Video, only	451 (2.6)	15.6
Video and in-person, only	256 (1.5)	13.0
Video and telephone, only	84 (0.5)	2.1
Video, in-person, and telephone	56 (0.3)	2.6
Data from 2021 Medical Expenditure Panel Survey presented as annualized percentages.		

Supplement Table 8. Percentage of adults receiving outpatient mental health care who received in-person, telephone, and real-time video visits by level of psychological distress

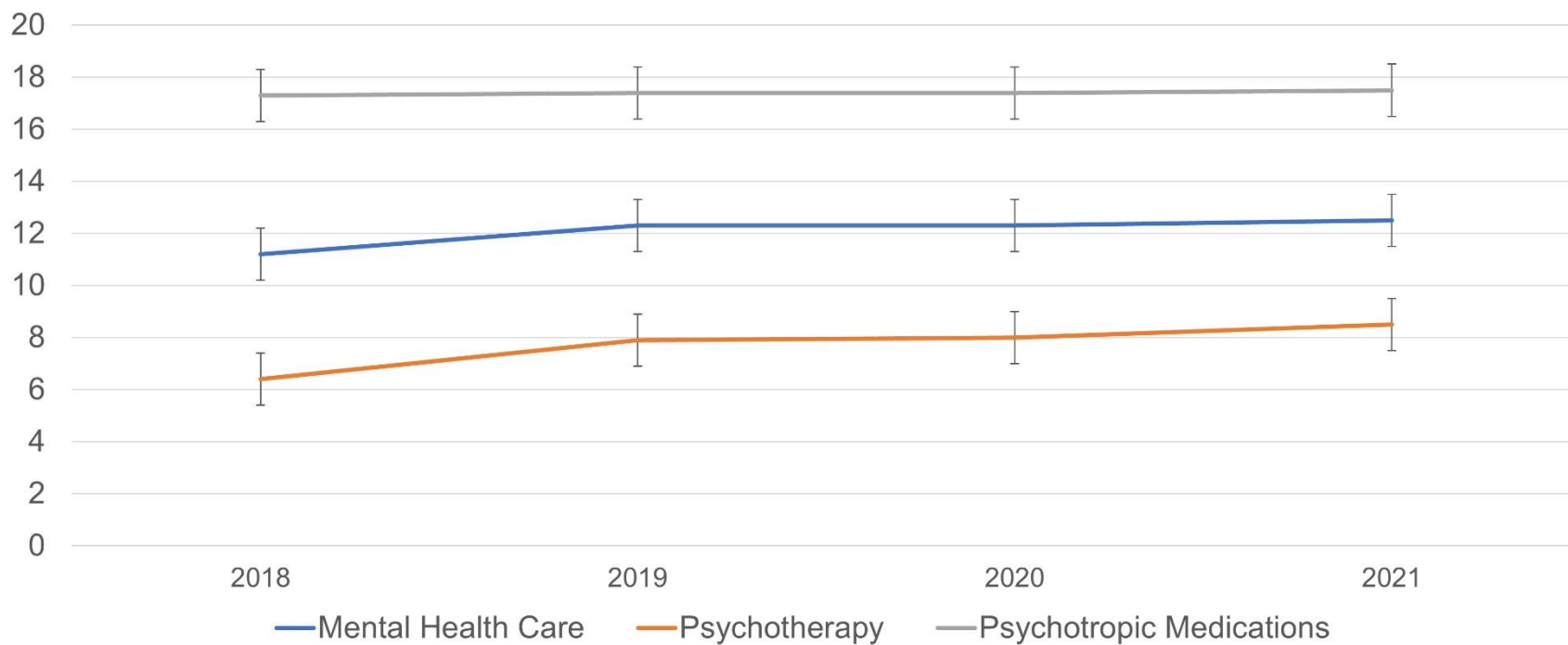
Variable	Any In-Person Mental Health Care		Any Telephone Mental Health Care		Any Video Mental Health Care	
	% [95% CI]	Adjusted Difference [95% CI] <sup>A</sup>	% [95% CI]	Adjusted Difference [95% CI] <sup>A</sup>	% [95% CI]	Adjusted Difference [95% CI] <sup>A</sup>
Total	73.6 [71.4, 75.9]	N/A	21.4 [19.4, 23.4]	N/A	33.4 [30.8, 36.0]	N/A
Psychological distress						
Serious	76.4 [70.5, 82.3]	Reference	28.1 [21.5, 34.7]	Reference	31.1 [23.8, 38.4]	Reference
Less serious	75.0 [72.0, 78.0]	-6.2 [-15.8, 3.5]	21.6 [18.9, 24.3]	-15.0 [-23.0, -7.1]	33.7 [30.6, 36.8]	1.0 [-9.4, 11.5]
None	71.5 [64.7, 78.4]	-1.9 [-8.1, 4.4]	14.1 [9.0, 19.3]	-6.5 [-13.5, 0.6]	28.7 [21.4, 36.0]	2.8 [-3.9, 9.6]
Data from Medical Expenditure Panel Surveys presented as annualized percentages. <sup>A</sup> Differences between 2021 and 2018 adjusted for age and sex.						

Supplement Figure 1. Trends in levels of psychological distress, adults, United States, 2018-2021



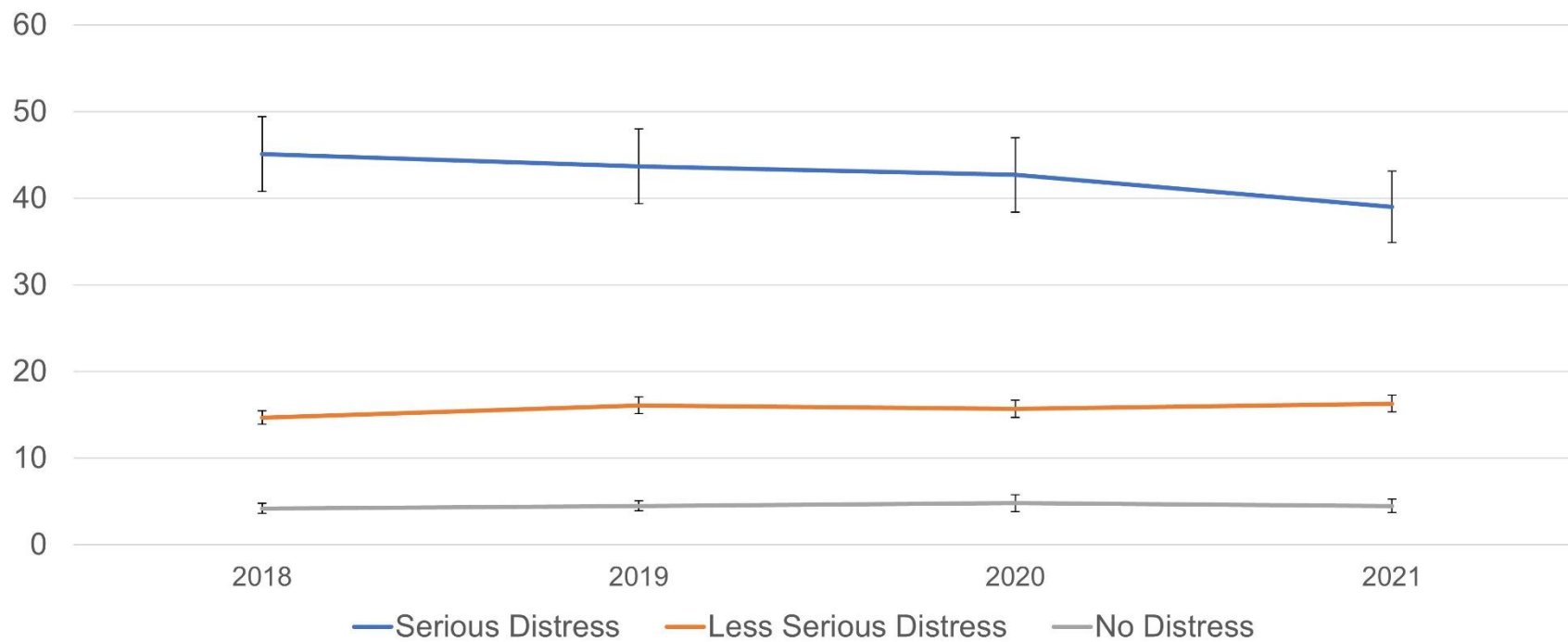
Data from 2018-2021 MEPS. Percentages with 95% confidence intervals are age and sex adjusted.

Supplement Figure 2. Trends in use of any mental health care, psychotherapy, and psychotropic medications, adults, United States, 2018-2021



Data from 2018-2021 MEPS. Percentages with 95% confidence intervals are age and sex adjusted.

Supplement Figure 3. Trends in outpatient visits by psychological distress, adults, United States, 2018-2021



Data from 2018-2021 MEPS. Percentages with 95% confidence intervals are age and sex adjusted.