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Research Article

Prescription and Non-Prescription Drug Use during the Covid-19 Pandemic among Racial-Ethnic Identities

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Abstract

Key Points

Question: How did psychological distress and self identified race/ethnicity affect prescription and non prescription medication use during the early phase of the COVID-19 pandemic among individuals living in the United States?

Findings: In this retrospective analysis, participants with moderate to severe anxiety or depression were associated with a higher likelihood of misusing drugs as compared with those with minimal to moderate anxiety or depression. Non-Hispanic Whites were associated with increased prescription drug (stimulants, sedatives, and opioids) use and racial/ethinc minorities reported increased non-prescription drug use.

Meaning: Our findings suggest an inequity in medication utilization and associated risks among racial ethnic communitites during the early phase of the COVID-19 pandemic.

Importance: According to the World Health Organization (WHO), global anxiety and depression rates rose 25% during the early months of the COVID-19 pandemic (May, June, and July 2020). This trend was associated with an increase in drug misuse and drug overdose related deaths among racial-ethnic minorities during this time.

Objective: To explore the relationship between depression, anxiety, and drug misuse in racial-ethnic minorities (REM) and non-Hispanic White (NHW) individuals during May, June, and July of 2020.

Design, Setting, and Participants: This retrospective analysis utilized data from the All of Us COVID-19 Participant Experience (COPE) Survey, collected from adult participants between May 2020 to July 2020.

Main Outcomes and Measures: Baseline and sociodemographic information, responses to psychological distress queries, and self-reported misuse of prescription stimulants, sedatives, and opioids during the pandemic were analyzed. Psychological distress was defined as moderate to severe levels of anxiety and/or depression using the PHQ-9 depression and GAD-7 mental health rating scales. Adjusted logistic regression models were used to evaluate the likelihood of medication misuse among REM as compared to NHW.

Results: Of 42,809 participants in May 2020, 83.0% were NHW and 17.0% were REM. The average age of NHW participants was 59.5 (SD=15.5) years, and 49.7 (SD=15.5) years for REM. Participants with moderate to severe anxiety or depression had a higher likelihood of misusing drugs as compared with those with minimal to moderate anxiety or depression. NHW had an 80% greater likelihood of using either prescription stimulants, sedatives, or opioids (OR:1.8; CI: 1.6-2.0, P<0.001) compared to REM. In contrast, NHW had a 30% lower likelihood of using nonprescription drugs (OR:0.7; Cl: 0.6-0.9, P<0.05) as compared to REM. Similar results were observed in June 2020 and July 2020.

Conclusion and Relevance: There was a positive relationship between moderate to severe depression or anxiety and medication misuse. The higher use of non-prescription drugs and methamphetamines in REM populations raises alarming concerns for healthcare equity and accessibility. This study informs the need to improve and advance healthcare accessibility, particularly for mental health, in REM communities.

Introduction

According to the World Health Organization (WHO), the COVID-19 pandemic resulted in a global increase in the prevalence of anxiety and depression [1]. In the United States, rates of anxiety and depression reported from April 2020 to August 2021 were approximately 4 times higher than they were in a similar period in 2019 [2]. Among Racial/Ethnic Minorities (REM), reports of anxiety and depression were higher as compared to Non-Hispanic Whites (NHW) [2]. Historically, rates of depression and anxiety have been infrequently reported in communities of color, while the effects of psychological distress including anxiety and depression are more consistent [2]. Studies suggest that REM communities were more likely to experience key negative outcomes of the pandemic such as grief, isolation, food shortages, housing insecurity, and unemployment [3,4]. These outcomes directly impacted mental wellbeing and contributed to increased stress, depression, and anxiety among REM as compared to their NHW counterparts [5].

The Centers for Medicare and Medicaid Services (CMS) reported that from March 2020 to October 2020, adult mental health services, and services for those with substance use disorders, decreased by 22% and 13% respectively [6]. During this same period, several communities in the United States reported an increase in substance use and increases in both illicit drug and prescription drug overdoses [7,8].

The Center for Disease Control and Prevention (CDC) reports that during the pandemic, 13% of Americans increased their substance use as a coping mechanism for COVID-19-related stress [9]. A recent mental health report also revealed that COVID-19 related isolation was associated with an increased use of prescription and nonprescription substances [10]. In the United States, drug overdose rates increased by 37% from February 2020 to August 2021; this denotes the highest relative increase in drug overdose mortality among all racial ethnic identities in the United States since 1999 [11]. The 2020 drug overdose mortality rate among REM communities was disproportionally higher than in NHW populations. Of these, American Indian or Alaska Native individuals and Black communities experienced the highest rate of overdose mortality in 2020 with 41.4 and 36.8 deaths per 100,000 [12].

To our knowledge, no prior study has investigated the relationship between anxiety, depression, and drug misuse among racial/ethnic minorities during the COVID-19 pandemic. To bridge this critical gap, we investigated trends of prescription and nonprescription drug misuse as a coping strategy for COVID-19 related psychological distress which we broadly defined as moderate to severe levels of anxiety and/or depression among NHW and REM during the early months of the COVID-19 pandemic (May 2020 to July 2020).

Methods

Study Design and Data Source: We performed a retrospective cross-sectional cohort analysis using data from the National Institutes of Health (NIH) All of Us Research Program. All of Us is a database that aims to collect a wide range of data from at least one million participants in the United States [13]. The COVID-19 Participant Experience (COPE) Survey was a survey administered to All of Us participants during the COVID-19 pandemic to investigate changes in participant experiences during the pandemic [13]. We used data from the COPE survey, collected between May 2020 and July 2020, to investigate the relationship between substance use and anxiety and depression among racial/ethnic minorities. Participants provided written informed consent at enrollment in the study which was approved by the NIH All of Us Institutional Review Board. For our analysis, we utilized de-identified data obtained from the COPE survey.

Study Population

Inclusion/Exclusion Criteria: We included adult NHW and REM participants who completed the COPE survey in the desired months. Participants eligible for inclusion in this study were those who self-reported their race or ethnicity in the COPE survey. REM were defined as those who did not self-identify as non-Hispanic White individuals [13].

Outcomes: The primary outcome for this analysis was substance use. In the COPE survey, substance use was assessed across 4 categories: 1) prescription drugs 2) nonprescription drugs, 3) methamphetamine and synthetic stimulants, and 4) prescription stimulants/sedatives/opioids. We investigated substance misuse separately across each of the 4 categories and considered an affirmative answer to "medication use without prescription, in larger amount, or duration or frequency then prescribed " as a qualifier [13].

Psychological distress: We defined psychological distress as moderate to severe levels of anxiety and/or depression. The Generalized Anxiety Disorder (GAD-7) and Patient Health Questionnaire (PHQ-9) screening tool cutoffs were used as qualifiers. The GAD-7 ranks anxiety into four categories; minimal anxiety(0-4), mild anxiety(5-9), moderate anxiety(10-14) and severe anxiety(15-21). 14 We compared medication use in participants with moderate to severe anxiety(10-21) to those

with mild anxiety(0-9). The PHQ-9 ranks depression into five categories: minimal depression(1-4), mild depression(5-9), moderate depression(10-14), moderately severe depression(15-19), and severe depression(20-27). 15 We compared medication use in participants with moderate to severe depression(10-27) to those with minimal to mild depression(1-9). Both screening tools (GAD-7 and PHQ-9) are based on the DSM-IV criteria for major depression and generalized anxiety disorder and have well-documented reliability and validity in the literature [15].

Statistical Analysis:

Data were reviewed for baseline and sociodemographic information, GAD-7 and PHQ-9 scoring, and self-reported use and misuse of prescription stimulants, sedatives, and opioids during the COVID-19 pandemic. Demographic data were analyzed using descriptive statistics, counts and percentages for categorical data, and mean and standard deviation scores for continuous data. Missing data for GAD-7 and PHQ-9 scoring was less than 10% and at random therefore, the weighted average method was utilized to calculate the psychological distress scores [16].

Logistic regression models were used to generate odds ratios (ORs) and 95% confidence intervals (CIs) using psychological distress (anxiety, depression), and racial/ethnic status as exposures with categories of substance misuse as outcomes. Adjusted covariates included age, Charlson Comorbidity Index, gender, employment status, insurance, marital status, number of people at home, and type of household. The adjusted variables were categorized as gender (male, female), employment status (employed and not employed), insurance (yes, no), marital status (separated, married, never married), number of people at home (1,2,4) and type of household (free standing house, homeless).

Two tailed P-values were considered statistically significant at a = 0.05. The NIH All of Us Researcher Workbench using R software (The R Foundation) was used to conduct the analyses, available in our project workspace [17].

Results

Demographics:

The All of US COPE survey was completed by 115,320 participants from May to July 2020. On average, participants self-identified their ethnicities as 83% NHW and 17% REM. NHW had a mean age of 59.0 (15.5) years compared to REM whose mean age was 49.7 (15.5). (Table 1). 35% of NHW and 28% of REM self-identified as male while 63 % of NHW and 71% of REM self-identified as female. The mean (SD) Charlson comorbidity Index (CCI) values were found to be consistently low across the two groups during all three months i.e., in May 2020 NHW was 0.5 (1.4), REM 0.48 (1.4). (Table 1) Across the three months, more NHW reported being unemployed as compared to REM; 50.1 %, 58.7% and 52.8% in May, June, and July 2020 respectively. We observed similar health insurance coverage in both groups across the three months (93%-98.2% of parcipants covered) (Table 1).

	May-20		Jun-20		Jul-20	
Demographics	**NHW (n=35598)**	**REM (n=7211)**	**NHW (n=27612)**	**REM (n=5061)**	**NHW (n=32757)**	**REM (n=7081)**
Age (years)						
Mean (SD)	59.0 (15.5)	49.7 (15.5)	60.4 (15.1)	51.2(15.4)	59.3(15.3)	50.2(15.5)
Gender – N (%)						
Male	12476(35.0)	1995(27.6)	9879(35.8)	1439(28.4)	11354(34.6)	1922(27.1)
Female	22631(63.5)	5097(70.6)	17359(62.9)	3540(70)	20939(63.9)	5030(71)
Gender Identity: Non-Binary	491(1.3)	119(1.7)	375(1.3)	82(1.6)	464(1.3)	129(1.7)
NA	143(0.02)	39(0.01)	127(0.02)	30(0.01)	140(0.02)	46(0.01)
Number of people at home- Mean (SD)	1.4(1.2)	1.86(1.9)	1.34(1.2)	1.8(1.5)	1.3(1.2)	1.8(1.5)
NA N (%)	3321(9.3)	851(9.8)	2604(9.4)	652(8.8)	2718(8.2)	800(9.2)
What type of household do you live in? N (%)						
Free-standing house	35301(99.1)	7086(99.6)	27366(99.1)	4981(98.5)	32474(99.1)	6948(98.8)
Homeless	31(0.09)	24(0.33)	33(0.001)	11 (0.002)	32(0.0)	19(0.002)
NA	266(0.007)	101(0.01)	213(0.07)	64(0.01)	251(0.007)	114(0.001)

What is your current employment status? N (%)						
Employed (self-employed + employed for wages)	17710(49.7)	4244(58.8)	12698(45.0)	2839(56.0)	15369(46.9)	4001(56.5)
Not employed	17805(50.1)	2881(40.0)	14840(58.7)	2154(42.5)	17289(52.8)	2963(41.8)
NA	83(0.23)	86(1.2)	74(0.26)	68(1.3)	99(0.3)	117(1.65)
Are you covered by health insurance or some other kind of health care plan? N (%)						
Yes	34968(98.2)	6772(93.9)	27154(98.3)	4756(94.0)	32114(98.0)	6584(93.0)
No	455(1.3)	333(4.6)	309(1.1)	222(4.4)	426(1.3)	372(5.25)
NA	175(0.5)	106(1.4)	149(1.0)	158(1.53)	217(0.64)	125(1.8)
What is your Marital Status? N (%)						
Divorced/separated/widowed	6611(18.5)	1404(19.4)	5340(19.3)	1035(20.4)	5340(19.3)	1035(20.4)
Married/ living with partner	24060(67.5)	3708(51.4)	18579(67.3)	2623(51.8)	18579(67.3)	2623(51.8)
Never married	4672(13.1)	1926(26.7)	3476(12.6)	1278(25.2)	3476(12.6)	1278(25.2)
NA	255(0.7)	173(2.43)	217(0.8)	125(2.4)	217(0.8)	125(2.4)
Charlson comorbidity Index						
CCI, Mean (SD)	0.55(1.4)	0.48(1.4)	0.56(1.4)	0.49(1.3)	0.52(1.3)	0.46(1.3)
NHW= Non-Hispanic Whites, REM= Racial Ethnic minorities, CCI= Charlson comorbidity Index, SD= standard deviation, NA= not available.						

Table 1: Baseline sociodemographic characteristics of NHW and REM from May 2020 to July 2020.

In May 2020, among NHW participants, 13.3% had moderate to severe anxiety, while 86.5% had mild to moderate anxiety (Table 2). 15.3% of NHW had moderate to severe depression while 84.4% had mild to moderate depression were 84.4% (Table 2). Among REM, 18.3% reported moderate to severe anxiety, while 81.3% experienced mild to moderate anxiety (Table 2). 20.2% of REM participants reported moderate to severe depression and 79.1% reported mild to moderate depression. A similar trend was observed in June and July 2020 (Table 2).

Status	**May-20**		**Jun-20**		**Jul-20**	
	NHW	**REM**	**NHW**	**REM**	**NHW**	**REM**
Anxiety	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Minimal to Mild anxiety	30811 (86.5)	5870(81.3)	24114(87.3)	4183 (82.5)	28528 (87)	5839 (82.4)
Moderate to severe anxiety	4773 (13.3)	1327(18.3)	3372 (12.2)	850(16.8)	4105(12.4)	1202 (16.9)
NA	14 (0.03)	14(0.2)	126 (0.45)	28 (0.5)	124(0.3)	40 (0.5)
Depression	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Minimal to Mild depression	30077 (84.4)	5727(79.1)	23712(85.8)	4071(80.4)	27780(84.7)	5697 (80.4)
Moderate to severe depression	5283(15.3)	1470(20.2)	3887(14)	988(19.4)	4963(15.1)	1364(19.1)
NA	15 (0.04)	14 (0.19)	13(0.04)	2(0.03)	14(0.04)	20(0.69)
REM= Racial ethnic minorities, NHW= Non-Hispanic Whites, N= number, % = percentage						

Table 2: Distribution of anxiety and depression among NHW and REM.

Prescription drug use:

Compared to participants with minimal to mild anxiety, participants with moderate to severe anxiety were nearly three times more likely to use prescription drugs (OR:2.9, CI: 2.3-3.5, P<0.001) in May 2020. Compared to participants with minimal to mild anxiety in June 2020, participants with moderate to severe anxiety had 4 times higher likelihood of using prescription drugs more than usual (OR:4.0, CI: 3.0-5.2, P<0.001) (Table 3).

In July 2020, compared to participants with minimal to mild anxiety, participants with moderate to severe anxiety had more than a 4 fold likelihood of using prescription drugs more than usual (OR:4.2, CI: 3.3-5.4, P<0.001) (Table 3).Similarly, participants with moderate to severe depression had a nearly 4 fold higher likelihood of using prescription drugs more than usual compared to participants with minimal to mild depression (OR:3.8, CI: 3.1-4.7, P<0.001) in May 2020. In June and July 2020, the likelihood of using prescription drugs more than usual in this group were more than 3 fold higher (OR:3.2, CI: 2.4-4.2, P<0.001) and 3 fold (OR:3.0, CI: 2.3 -3.8, P<0.001) respectively (Table 3).

In May 2020, NHW 1.5 fold higher likelihood than REM of using prescription drugs more than usual (OR: 1.5, CI: 1.2-1.9, P<0.001). A similar finding was noted in June 2020 (OR:1.4, CI: 1.0-1.8, P<0.05) and and July 2020 (OR:1.3, CI: 1.0-1.7, P<0.05) (Table 3).

Prescription drug use	**May-20**			**Jun-20**			**Jul-20**		
	Adjusted OR	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**
Anxiety									
Moderate to Severe Anxiety	2.9	2.3 – 3.5	**<0.001**	4	3.0 – 5.2	**<0.001**	4.2	3.3 – 5.4	**<0.001**
Minimal to Mild Anxiety (ref)	-	-	-						
Depression									
Moderate to Severe Depression	3.8	3.1 – 4.7	**<0.001**	3.2	2.4 – 4.2	**<0.001**	3.01	2.3 – 3.8	**<0.001**
Minimal to Mild Depression (ref)	-	-	-						
Non-Hispanic White									
Yes	1.5	1.2 – 1.9	**<0.001**	1.4	1.0 -1.8	**<0.05**	1.3	1.0 – 1.7	**<0.05**
No (ref)	-	-	-						
Non-Prescription drug use	**May-20**			**Jun-20**			**Jul-20**		
	Adjusted OR	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**
Anxiety									
Moderate to Severe Anxiety	2	1.6 – 2.6	**<0.001**	2.2	1.6 – 3.0	**<0.001**	1.7	1.3 – 2.3	**<0.001**
Minimal to Mild Anxiety (ref)	-	-	-	-	-	-	-	-	-
Depression									
Moderate to Severe Depression	3.2	2.5 – 4.1	**<0.001**	2.4	1.7 – 3.3	**<0.001**	2.9	2.2 – 3.8	**<0.001**

Minimal to Mild Depression (ref)	-	-		-	-	-	-	-	-
Non-Hispanic White									
Yes	0.7	0.6 – 0.9	**<0.05**	1.1	0.8 – 1.5	**0.51**	0.7	0.5 – 0.9	**<0.05**
No (ref)							-	-	-
Prescription stimulants/sedatives and Prescription opioids use	**May-20**			**Jun-20**			**Jul-20**		
	Adjusted OR	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**
Anxiety									
Moderate to Severe Anxiety	1.4	1.2 – 1.5	**<0.001**	1.6	1.4 – 1.8	**<0.001**	1.3	1.2 – 1.4	**<0.001**
Minimal to Mild Anxiety (ref)	-	-	-						
Depression									
Moderate to Severe Depression	2.6	2.4 – 2.9	**<0.001**	2.4	2.4 – 2.6	**<0.001**	2.8	2.5 – 3.1	**<0.001**
Minimal to Mild Depression (ref)	-	-	-						
Non-Hispanic White									
Yes	1.8	1.6 – 2.0	**<0.001**	1.5	1.4 – 1.7	**<0.001**	1.7	1.5 – 1.8	**<0.001**
No (ref)	-	-	-						
OR = Odds ratio, ref= reference, 95% CI = 95%. Confidence interval,									

Table 3: Prescription and Non-Prescription drug use vs Anxiety, depression.

Non-Prescription drug use:

Compared to participants with minimal to mild anxiety, participants with moderate to severe anxiety had twice higher likelihood of using non-prescription drugs more than usual (OR:2.0, CI: 1.6-2.6, P<0.001) in May 2020. Similar results were found in other two months i.e., (OR: 2.2, CI: 1.6-3.0, P<0.001) and (OR: 1.7, CI: 1.3- 2.3, P< 0.001), for June and July 2020 respectively (Table 3).

Participants with moderate to severe depression had nearly 3 times higher likelihood of using nonprescription drugs more than usual (OR:3.2, CI: 2.5-4.1, P<0.001) in May 2020, Similar results were found in June 2020; (OR:2.4, CI: 1.7-3.3, P<0.001) and July (OR: 2.9,CI: 2.2-3.8, P<0.001) (Table 3).

Compared to REM, NHW had a 30% lower likelihood of using nonprescription drugs more than usual (OR:0.7, CI: 0.6-0.9, P<0.05) in May 2020. For June and July 2020, the values were (OR:1.1, CI: 0.8- 1.5, P<0.51) and (OR:0.7, CI: 0.5-0.9, P<0.05) respectively (Table 3).

Prescription stimulants/sedatives and Prescription opioids:

The odds of using prescription stimulants/sedatives and prescription opioids in the preceding month was 40% higher in participants with moderate to severe anxiety compared to minimal to mild anxiety in May 2020 (OR 1.4 CI: 1.2-1.5, P<0.001). The likelihood of using prescription stimulants/sedatives and prescription opioids for anxiety was 60 % higher in June 2020 (OR:1.6, CI, 1.4-1.8, P<0.001), and 30 % in July 2020 (OR:1.3, CI, 1.2–1.4, P<0.001) (Table 4). The odds of using prescription stimulants/sedatives and prescription opioids in the past month were more than twice higher (OR:2.6, CI: 2.4 – 2.9, P<0.001) with moderate to severe depression compared to minimal to mild depression in May 2020. The likelihood of using prescription stimulants/sedatives and prescription opioid use for patients with moderate to severe depression was more than 2 times higher in

June 2020 (OR:2.4, CI: 2.4 – 2.6, P<0.001) and nearly 3 times higher in July 2020 (OR:2.8, CI, 2.5 – 3.1, P<0.001) (Table 4). Compared to REM, NHW had almost twice higher likelihood of using prescription stimulants/sedatives and prescription opioids in the past month (OR:1.8,CI: 1.6-2.0, P<0.001) in May 2020. There was a similar trend noted in the months of June 2020 (OR = 1.5, CI: 1.4 – 1.7, P<0.001) and July 2020 (OR = 1.7, CI: 1.5 – 1.8, P<0.001) (Table 4).

Methamphetamine and Synthetic Stimulants Use:

The likelihood of using methamphetamine and synthetic stimulants with moderate to severe anxiety in the past month was 10 % higher (OR = 1.1; CI, 0.5–2.2, P<0.001) compared to minimal to mild anxiety in May 2020. The likelihood of using Methamphetamine & Synthetic stimulants for anxiety in June and July 2020 was as follows (OR = 1.5; CI,0.7-2.9, P = 0.21), (OR = 2.1; CI, 1.2–3.5, P<0.01) respectively (Table 4). Compared to participants with minimal to mild depression, participants with moderate to severe depression had more than twice higher odds of using methamphetamine and synthetic stimulant in the last month (OR:2.4 CI: 1.3 – 4.5, P<0.05) in May 2020. The OR had a similar trend in all three months from May through July 2020 (Table 4).

Methamphetamine and Synthetic stimulant use	**May-20**			**Jun-20**			**Jul-20**		
	Adjusted OR	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**	**Adjusted OR**	**95% CI**	**P**
Anxiety									
Moderate to Severe Anxiety	1.1	0.5 – 2.2	**<0.01**	1.5	0.7 – 2.9	**0.21**	2.1	1.2 – 3.5	**<0.01**
Minimal to Mild Anxiety (ref)	-	-	-	-	-	-	-	-	-
Depression									
Moderate to Severe Depression	2.4	1.3 – 4.5	**<0.05**	3.6	1.8 – 7.1	**<0.001**	2.3	1.4 – 3.9	**<0.001**
Minimal to Mild Depression (ref)	-	-	-	-	-		-	-	
Non-Hispanic White									
Yes	0.6	0.3 – 1.0	**0.07**	1.9	0.9 – 4.1	**0.08**	0.83	0.5 – 1.3	**0.43**
No (ref)	-	-	-	-	-	-	-	-	
OR = Odds ratio, ref= reference, 95% CI = 95%. confidence interval.									

Table 4: Prescription stimulants/sedatives, Prescription opioids, and Methamphetamine/Synthetic stimulant use vs anxiety, depression and race/ethnicity.

Substance Misuse	**May-20**		**Jun-20**		**Jul-20**	
	NHW (n=35598)	**REM (n=7211)**	**NHW (n=27612)**	**REM (n=5061)**	**NHW (n=32757)**	**REM (n=7081)**
Substance use in the past month to cope with social distancing and isolation, N (%)						
Prescription drug misuse	597(1.7)	105(1.4)	393(1.4)	70(1.3)	456(1.4)	97(1.4)
Non-prescription drug misuse	375(1.0)	130(1.8)	245(0.88)	63(1.2)	293(0.9)	106(1.5)
Prescription stimulants/Prescription sedative/Prescription opioids N (%)						

Yes	5084(4.8)	666(3.1)	3903(4.7)	520(3.4)	4962(5.0)	742(3.4)
No	92746(86.8)	19770(91.4)	74244(89.6)	14159(93.2)	88167(89.7)	19708(92.7)
NA	8964(8.3)	1197(5.5)	4689(5.7)	504 (4.1)	5142(5.2)	798(3.7)
Methamphetamine/Synthetic stimulants N (%)						
Yes	55(0.07)	27(0.35)	58(0.22)	13(0.2)	99(0.3)	34(0.45)
No	65165(91.5)	13597(94.2)	52040(94.2)	9773(96.5)	61987(94.6)	13596(96.1)
NA	5976(8.4)	798(5.5)	3126(5.6)	336(3.3)	3428(5.2)	532(3.7)
REM= Racial ethnic minorities, NHW= Non-Hispanic Whites, N= number, % = percentage						

Table 5: Substance Misuse in NHW and REM from May 2020 to July 2020.

Discussion

In this study, we evaluated medication use behaviors as a coping mechanism for COVID-19 related anxiety and depressed. After adjustment, mild to moderate anxiety and depression was reported more in both groups as compared to moderate to severe anxiety. However, from May to July 2020, REM reported overall higher rates of anxiety and depression as compared with NHW. This is likely attributed to an especially heightened sense of fear and apprehension among racial/ethnic minorities in the earlier months of the pandemic [18,19]. Asian American communities were experiencing markedly higher rates of xenophobia and racism associated with public assault, perceived danger, anxiety, and fear [20-22]. Additionally, African American populations were faced with increased allegations of police brutality, widespread grief, and fear due to the public losses of individuals such as George Floyd, Breonna Taylor, Ahmaud Aubrey [23-25]. Furthermore, Latinx populations continued to be confronted with immigration policies that contributed to heightened anxiety and depression [26-28].

When stratified by racial/ethnic identity, NHW were associated with increased prescription drug (stimulants, sedatives, and opioids) use. Previous studies suggest wealth distribution disparities, implicit bias in prescribing patterns, and inequitable mental health resource accessibility as potential contributors to this disconcerting trend [25,26, 29-40].

In contrast, we found that REM were associated with increased non-prescription drug use as compared to NHW. This is consistent with the United States Substance Abuse and Mental Health Services Administration's (SAMHSA) annual estimates report on racial/ethnic differences in substance use, substance use disorders, and substance use treatment utilization from 2015-2019 which stated that the rate of illicit substance use in people aged 12 or older in the United States was highest in REM vs NHW [41]. A similar trend was seen for illicit substance use disorders during that period [41]. REM populations often have a sense of mistrust towards the medical system due to historical trauma and may therefore resort to self-medicating as a coping mechanism in lieu of seeking care [42]. There are several factors that might influence a minoritized patient's comfort or likelihood of seeking treatment for mental health and substance use disorders. These include inter- and intra-personal barriers perpetuated by societal stigma, structural barriers that result in poor accessibility to treatment centers, and social determinants of health that interfere with mental and behavioral health accessibility [42]. Perhaps the most notable risk to untreated substance abuse disorder is the risk of drug overdose and subsequent death. As nationwide overdose rates rose during the earlier months of the pandemic, minoritized populations, specifically American Indian or Alaska Natives, Blacks, and Hispanic populations continued to be disproportionately impacted [10].

In light of these prevailing differences in mental healthcare utilization and outcomes across ethnicities, we recommend utilizing culturally specific, innovative, and scalable modalities, as a means of continued expansion of equitable access to mental health and behavioral health resources among racial-ethnic minority communities. One such modalities which was widely utilized during the COVID-19 pandemic is telehealth.

Generally, the use of telehealth significantly increased during the COVID-19 pandemic era and has stabilized since then [43-46]. To adapt to this shift in care, the Centers for Medicare and Medicaid Services (CMS) lifted significant restrictions on reimbursements for telehealth care [47]. The expansion of telehealth has provided overall financial and time benefits to minority individuals and may be applied not only to substance use disorder but a variety of conditions [48]. While Medicare has supported this paradigm shift by permanently extending reimbursements for telehealth visits, whether other third-party payers follow suit is to be determined. It is noted, however, that while the extension of telehealth use was received favorably by racial/ethnic minority patients, certain disparities still persist [49]. For example, racial/ethnic minorities

were approximately 40% less likely to report a full audio-visual telehealth visit during the pandemic era than white individuals [49]. Certain racial/ethnic minority groups also experience higher rates of limited English proficiency (LEP), which may pose as significant barriers to telehealth care [50]. Third-party payers and policymakers must therefore remain cognizant of limitations on cost, digital literacy, and health literacy that persist among minority groups. Moreover, decision makers must take care to appropriately integrate appropriate translation services into telehealth for mental healthcare.

Mental health and medication misuse amongst minoritized populations is a multimodal concern which is exacerbated and driven by structural racism, generational trauma, and disparities in social determinants of health. As such, we advocate for a multimodal approach to combat the disparity in appropriate mental health support amongst racial-ethnic populations including thorough cultural competency training, improved representation amongst mental health providers, and the allocation of funding to support programming that would incorporate cultural specificity in the provision of equitable mental and behavioral health resources.

Limitations

A main limitation of this study is data missingness, which may potentially increase the risk for misclassification bias. Our substance use data was self-reported by subjects in the COPE survey; hence these data could be heavily impacted by underreporting. Moreover, there could be a methodological limitation, as the COPE survey did not ask for already in use prescription medications. Respondents with severe anxiety/depression and previously on prescription medications may have increased risk of medication misuse. Furthermore, the majority of the subjects self-reported mild/minimal levels of anxiety and depression, hence our findings may not be generalized to subjects with more severe levels of psychiatric symptoms. Additionally, GAD-7 and PHQ-9 are not confirmatory tests for anxiety and depression, so respondent's mental health cannot be confirmed. We observed that the REM subjects completing the COPE survey were younger and more likely to be employed compared to the NHW subjects. However, the use of the All of Us database allowed us to adjust for a number of characteristics (disease, demographic, and lifestyle) in our analysis.

Conclusion

In conclusion, the use of prescription drugs (prescription stimulants, prescription sedatives, and prescription opioids) to cope with COVID-related distress was more prevalent among NHW compared to REM while the use of non-prescription drugs, specifically synthetic stimulants and Methamphetamines was slightly higher among minorities than NHW. The higher usage of non-prescription drugs by REM may be attributed to structural racism and barriers that limit healthcare accessibility. This disparity emphasizes the importance of advocating for health equity, confronting disparities in mental health support resources, addressing prescribing practices, prioritizing social determinants of health, and increasing access to healthcare by furthering telemedicine.

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