



The associations of everyday and major discrimination exposure with violence and poor mental health outcomes during the COVID-19 pandemic

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ABSTRACT

Research on discrimination and risks for violence and mental health issues under the pandemic is notably absent. We examined the relative effects of perceived everyday discrimination (e.g., poorer service, disrespectful treatment in a typical week) and major experiences of race-based discrimination (e.g., racial/ethnic discrimination in housing or employment at any point in the lifetime) on experiences of violence and the PHQ-4 assessment of symptoms of depression and anxiety under the pandemic. We analyzed state-representative cross-sectional survey data from California adults ($N = 2114$) collected in March 2021. We conducted multivariate regression models adjusting for age, race/ethnicity, gender, sexual identity, income, and disability. One in four Californians (26.1%) experienced everyday discrimination in public spaces, due most often to race/ethnicity and gender. We found that everyday discrimination was significantly associated with past year physical violence (single form Adjusted Odds Ratio [AOR] 5.0, 95% CI 2.5–10.3; multiple forms AOR 2.6, 95% CI 1.1–5.8), past year sexual violence (multiple forms AOR 2.5, 95% CI 1.4–4.4), and mental health symptoms (e.g., severe symptoms, multiple forms AOR 3.3, 95% CI 1.6–6.7). Major experiences of race-based discrimination (reported by 10.0% of Californians) were associated with past year sexual violence (AOR 2.0, 95% CI 1.1–3.8) and severe mental health symptoms (AOR 2.7, 95% CI 1.2–6.2). Non-race-based major discrimination (reported by 23.9% of Californians) was also associated with violence and mental health outcomes. Everyday discrimination, more than major experiences of discrimination, was associated with higher risk for violence and poor mental health outcomes during the pandemic. Non-race-based forms of major discrimination independently were also associated with these negative outcomes. Findings indicate that efforts to reduce and ultimately eliminate discrimination should be a focus of public health and COVID-19 rebuilding efforts.

The authors report no conflicts of interest.

1. Introduction

Global evidence documents a 25% increase in depression and anxiety disorders as a consequence of the social isolation and economic and health stressors of the COVID-19 pandemic (WHO, 2022). In the United States (U.S.), these mental health consequences are occurring in tandem with an increase in violence, with some indication that these disproportionately affected women and racial/ethnic minorities (Connor et al.,

2020; FBI, 2021, June, 2021; GEH, May 13, 2021). Racially motivated hate crimes and racial discrimination also increased in this same time-frame, as did those based on sexual identity, religion and gender (FBI, and August 30, 2021; Strassle et al., 2022). Racial discrimination is a driver of major health inequities including experiences of violence and poor mental health (Marmot, 2017; McCartney et al., 2019; Williams and Cooper, 2019). However, research has not examined the associations between discrimination and these outcomes in the pandemic.

The American Psychological Association describes discrimination as “the unfair or prejudicial treatment of people and groups based on social

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Table 1

Experiences of discrimination, past year victimization from violence, recent depression/anxiety symptoms, and socio-demographic characteristics among a state representative sample of California adults in March 2021 (N = 2114).

	Unweighted N	Weighted %
Total	2114	100%
Experiences of discrimination		
Everyday discrimination		
None	1603	73.9%
Single Form	298	14.2%
Multiple Forms	213	11.9%
Major experiences of race-based discrimination		
No	1931	90.0%
Yes	183	10.0%
Major experience of non-race-based discrimination		
No	1537	76.1%
Yes	577	23.9%
Policing in past year		
No	1766	86.4%
Yes	348	13.6%
Outcomes		
Physical violence, past year		
No	1943	93.0%
Yes	171	7.0%
Sexual harassment or violence, past year		
No	1840	86.6%
Yes	274	13.4%
Depression/anxiety symptoms, past 2 weeks		
Normal	1229	56.1%
Mild	523	25.4%
Moderate	223	10.7%
Severe	139	7.8%
Socio-demographics		
Gender		
Female	989	51.0%
Male	1125	49.0%
Race		
White	1436	44.5%
Black	85	5.6%
Asian	151	12.5%
Hispanic	339	31.4%
Other/multiple races	103	6.1%
Age (continuous; mean SD)	48.5	17.2
Income Quintile		
Lowest	375	25.5%
Second Lowest	369	19.9%
Middle	351	17.0%
Second Highest	472	18.6%
Highest	547	19.1%
Sexual identity		
Heterosexual	1891	90.2%
Gay/Lesbian/Bisexual/Other	223	9.8%
Disability		
No	1465	71.3%
Yes	649	28.8%

characteristics or identities such as race, gender, age or sexual orientation.” (APA, October 31, 2019). Such discrimination can be in the form of “everyday discrimination,” which can include being treated with lesser courtesy and respect in everyday interactions (Williams et al., 1997) or “microaggressions” such as snubs, slights and misguided comments that suggest a person doesn’t belong or invalidates his or her experiences” (APA, October 31, 2019). In contrast, major episodes of discrimination are those that are similar to major life events and instrumental in adversely affecting opportunities for advancement or triggering retrogression/harm (Williams et al., 2008). These include discrimination occurring at the institutional level, with resultant disadvantage based on a social attribute by the system (e.g., refusal of a loan from a bank) or within the institution (e.g., denial of promotion or salary inequity in one’s place of employment) (Lincoln and Stanley, 2021), as well as institutional violence such as discriminatory policing (Williams et al., 2008). Limited research has examined the relative effects of these forms of discrimination, though both forms are associated

with poorer health, particularly mental health (Gee, 2002, 2008; Williams et al., 2019a).

Discrimination may also be associated with the exacerbation of poorer mental health outcomes resulting from the pandemic (Hossain et al., 2020), particularly given evidence of elevation in racial/ethnic discriminatory attacks over the past few years in the U.S. (Laster Pirtle and Wright, 2021). Prior research indicates that experiences of violence are associated with COVID-19 related mental health effects (A. Raj et al., 2020a,b), but discrimination has not been examined in this regard. This is a notable absence given that discrimination itself can be considered a form of violence (Lombardi et al., 2002; Sanders-Phillips, 2009; Steel-Fisher et al., 2019). Further, similar to community and family violence (Bacchus et al., 2018; Baranyi et al., 2021; Norman et al., 2012), discrimination has been implicated in creating chronic stress and poorer mental health outcomes among socially marginalized populations (APA, October 31, 2019; Bailey et al., 2017; Berger and Sarnyai, 2015; Ruth A. Hackett et al., 2020; Paradies et al., 2015; Williams et al., 2019b). Racial/ethnic discrimination experiences may have increased under the pandemic (Laster Pirtle and Wright, 2021) and may be linked with both violence and poorer mental health outcomes. Other forms of social discrimination also may have increased under the pandemic, but consideration of both racial and non-racial discrimination simultaneously is not typically done in the literature, despite calls for more intersectional analysis (Fagrell Trygg et al., 2019).

Research that has examined associations between discrimination and victimization from violence has mostly focused on self-reported perceptions of gender discrimination and experiences of violence against women and lesbian, gay, bisexual, transgender, queer/questioning, intersex, asexual (LGBTQIA+) individuals (Gordon and Meyer, 2007; Jackson et al., 2019a; Lombardi et al., 2002; Rafferty, 2013; Steel-Fisher et al., 2019). Similarly, there is extensive evidence regarding gender and mental health. There has long been evidence regarding higher levels of depression for women relative to men, but research also documents associations between gender discrimination and poor mental health outcomes (Hackett et al., 2019). Studies also show that experiences of discrimination against LGBTQIA + individuals are associated with poorer mental health outcomes, and further, that minority stress contributes to this increased risk in ways similar to that seen for racial/ethnic minority communities (Hatzenbuehler and Pachankis, 2016; Meyer, 2003; Tan et al., 2020). Intersectional minority stresses, such as being gay and Black, likely compound stress responses and increase risk for consequent mental health concerns (Parra and Hastings, 2018). Certainly, other characteristics could contribute to experiences of discrimination as well, such as disability; research shows that disability-based discrimination is also linked to both violence, including hate crime violence, and poorer mental health outcomes (Clement et al., 2011; R. A. Hackett et al., 2020a,b). Age discrimination, based mostly on older age, is also correlated with worse physical and mental health outcomes (Jackson et al., 2019b). So here, too, we see the potential harms of discrimination across attributes, and the aggregate and intersectional risks that can occur for those who are, for example, older and living with disability.

Racial discrimination and victimization from violence has received less attention, despite extensive research documenting the association between this form of discrimination and other negative social and health outcomes, including mental health trauma (Bailey et al., 2017; Lewis et al., 2015; Williams and Cooper, 2019; Williams et al., 2019a). Mental health trauma is highly correlated with violence in racial/ethnic minority communities (Williams, 2018). Lack of focus on this issue is particularly of concern given the availability of research on race-/ethnicity and violent crime (Burt et al., 2012) and the demonstrated interconnections of violence victimization, violence perpetration, and mental health (Choe et al., 2008; Hong et al., 2015; Russell et al., 2010). Further, while there is an increasing recognition of intersectional discrimination – i.e., discrimination based on multiple social factors in combination, such as race/ethnicity and gender (Fagrell Trygg et al.,

Table 2

Frequencies, unadjusted and adjusted logistic regression analyses to assess associations between experiences of discrimination and past year physical violence among a state representative sample of California adults in March 2021 (N = 2114).

	Tabulations by outcome				Unadjusted regression				Adjusted regression			
	Physical Violence Subsample		No Physical Violence Subsample		OR	p-value	95% CI		AOR	p-value	95% CI	
	Unwt N	Wt %	Unwt N	Wt %			Lower	Upper			Lower	Upper
Everyday Discrimination												
None	44	26.8%	1559	77.4%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Single Form	72	47.4%	226	11.7%	11.67	<0.001	6.39	21.31	5.03	<0.001	2.46	10.31
Multiple Forms	55	25.7%	158	10.8%	6.85	<0.001	3.49	13.44	2.57	0.02	1.14	5.79
Major experiences of race-based discrimination												
No	137	84.7%	1794	90.4%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	34	15.3%	149	8.6%	1.70	0.16	0.82	3.53	0.94	0.90	0.34	2.57
Major experience of non-race-based discrimination												
No	87	51.9%	1450	77.9%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	84	48.1%	493	22.1%	3.27	<0.001	1.95	5.48	1.95	0.054	0.99	3.83
Policing in Past Year												
No	53	46.8%	1713	89.4%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	118	53.3%	230	10.7%	9.56	<0.001	5.57	16.41	3.82	<0.001	2.04	7.14
Gender												
Male	126	57.3%	999	48.4%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Female	45	42.7%	944	51.6%	0.70	0.18	0.41	1.18	0.69	0.21	0.39	1.24
Race												
White	113	29.1%	1323	45.6%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Black	4	5.3%	81	5.6%	1.47	0.54	0.43	4.99	1.23	0.74	0.35	4.31
Asian	5	4.3%	146	13.1%	0.52	0.24	0.17	1.56	0.39	0.20	0.09	1.63
Hispanic	44	59.2%	295	29.3%	3.17	<0.001	1.88	5.35	1.76	0.11	0.88	3.50
Other/multiple races	5	2.1%	98	6.4%	0.52	0.23	0.18	1.52	0.32	0.051	0.10	1.00
Age												
Continuous - mean (SD)	34.7 (11.2)		49.5 (17.0)		0.94	<0.001	0.92	0.95	0.96	<0.001	0.94	0.98
Income Quintile												
Lowest	27	37.0%	348	24.6%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Second Lowest	17	14.2%	352	20.3%	0.46	0.07	0.20	1.07	0.39	0.03	0.17	0.93
Middle	14	10.7%	337	17.5%	0.41	0.04	0.17	0.98	0.54	0.20	0.21	1.38
Second Highest	42	19.8%	430	18.5%	0.71	0.36	0.35	1.47	1.02	0.97	0.47	2.21
Highest	71	18.3%	476	19.2%	0.64	0.19	0.32	1.25	1.14	0.76	0.49	2.65
Sexual identity												
Heterosexual	132	71.8%	1759	91.6%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Gay/Lesbian/Bisexual/Other	39	28.2%	184	8.4%	4.28	<0.001	2.33	7.85	2.43	0.01	1.19	4.96
Disability												
No	50	32.1%	1415	74.2%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	121	67.9%	528	67.9%	6.09	<0.001	3.54	10.47	2.57	0.004	1.36	4.84

2019), and differential effects of everyday compared with major experiences of discrimination, as noted above, little research has examined multiple forms of discrimination simultaneously. A study that did assess the independent and intersectional associations of self-reported perceptions of racial/ethnic and gender discrimination with experiences of victimization from violence found that both were associated with increased risk for victimization from dating violence among adolescents (Roberts et al., 2018).

The literature connecting violence and mental health outcomes shows that violence can be causal or resultant of poor mental health and is often embedded in social contexts of vulnerability and social and economic alienation (Chatterji and Heise, 2021). Meta-analyses using empirical research with youth and adults show a causal association between violence, experiences most often occurring for the first time in youth, and outcomes of depression and anxiety symptoms and diagnosis (Bellis et al., 2019; LeMoult et al., 2020). Studies also show that perpetrators are more likely to hold an anxiety attachment style, indicating that poor mental health outcomes may precede or follow violence experiences (Velotti et al., 2022). Additional review studies highlight that contexts of social alienation and economic marginalization increase risk for both perpetration and victimization from violence, and exacerbate harmful effects of violence on mental health (Gao et al., 2017, 2021). Taken together, these findings highlight that violence and its negative health effects occur in and are affected by social and economic marginalization. Discrimination can be a mechanism through which marginalization occurs.

This study examines the associations between everyday and major

experiences of discrimination [measured by self-perception reports] and outcomes of victimization from violence [past year physical and sexual violence] and negative mental health symptoms [past two-week depression and anxiety symptoms] during the pandemic among a state-representative sample of California adults. This work can provide insight into the relative effects of everyday versus major discrimination on violence and mental health, and the relative effects of race-based and non-race based major experiences of discrimination on these outcomes. Such findings can offer greater insight into the ways in which multiple aspects of systemic racism can affect health disparities related to trauma and mental health (Boynton-Jarrett et al., 2021). We examine these issues in the context of a study from California, a state that showed both a significant increase in violence from 2020 to 2022 and early in the pandemic adverse mental health consequences (GEH, May 13, 2021; Anita Raj et al., 2020; A. Raj et al., 2020a,b; Raj et al. September 2022). Findings can help guide how to address pandemic impacts with considerations of social inequalities and health disparities.

2. Methods

2.1. Data source

We analyzed cross-sectional data from a state-representative online survey of California residents aged 18 and older (N = 2203) conducted in March 2021 as part of the California Study on Violence Experiences Across the Lifespan 2021 (Cal-VEX 2021) (GEH, May 13, 2021).

The Cal-VEX 2021 survey built upon prior annual surveys with an

Table 3

Frequencies, unadjusted and adjusted logistic regression analyses to assess associations between experiences of discrimination and past year sexual harassment and violence among a state representative sample California adults in March 2021 (N = 2114).

	Tabulations by outcome				Unadjusted regression				Adjusted regression			
	Sexual Violence Subsample		No Sexual Violence Subsample		OR	p-value	95% CI		AOR	p-value	95% CI	
	Unwt N	Wt %	Unwt N	Wt %			Lower	Upper			Lower	Upper
Everyday Discrimination												
None	110	43.9%	1493	78.5%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Single Form	87	27.6%	211	12.2%	4.06	<0.001	2.49	6.60	1.70	0.047	1.01	2.87
Multiple Forms	77	28.5%	136	9.3%	5.49	<0.001	3.36	8.96	2.48	0.002	1.41	4.36
Major experiences of race-based discrimination												
No	224	83.2%	1707	91.0%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	50	16.8%	133	9.0%	2.05	0.01	1.19	3.53	2.03	0.03	1.08	3.81
Major experience of non-race-based discrimination												
No	157	59.2%	1380	78.7%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	117	40.8%	460	21.3%	2.54	<0.001	1.71	3.78	2.36	0.001	1.45	3.85
Policing in Past Year												
No	142	64.3%	1624	89.8%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	132	35.7%	216	10.2%	4.87	<0.001	3.16	7.51	2.60	<0.001	1.61	4.19
Gender												
Male	141	31.8%	984	51.6%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Female	133	68.2%	856	48.4%	2.29	<0.001	1.55	3.37	3.19	<0.001	2.09	4.86
Race												
White	167	32.3%	1269	46.3%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Black	13	6.3%	72	5.5%	1.65	0.22	0.74	3.67	0.92	0.84	0.38	2.19
Asian	14	8.3%	137	13.1%	0.91	0.79	0.43	1.91	0.72	0.42	0.32	1.60
Hispanic	62	44.1%	277	29.4%	2.15	<0.001	1.40	3.30	1.12	0.67	0.67	1.88
Other/multiple races	18	8.9%	85	5.7%	2.25	0.02	1.13	4.50	1.57	0.34	0.62	3.96
Age												
Continuous - mean (SD)	37.3 (13.0)		50.2 (17.1)		0.95	<0.001	0.94	0.96	0.96	<0.001	0.94	0.97
Income Quintile												
Lowest	46	29.7%	329	24.8%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Second Lowest	37	20.5%	332	19.8%	0.86	0.62	0.49	1.53	0.98	0.96	0.53	1.82
Middle	33	13.7%	318	17.5%	0.65	0.19	0.34	1.23	1.05	0.90	0.51	2.17
Second Highest	70	18.6%	402	18.6%	0.84	0.54	0.48	1.48	1.41	0.30	0.73	2.71
Highest	88	17.6%	459	19.3%	0.76	0.33	0.44	1.32	1.58	0.12	0.88	2.85
Sexual Identity												
Heterosexual	213	78.5%	1678	92.0%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Gay/Lesbian/Bisexual/Other	61	21.6%	162	8.0%	3.17	<0.001	1.95	5.16	2.16	0.003	1.30	3.60
Disability												
No	128	48.9%	1337	74.7%	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	146	51.1%	503	25.3%	3.08	<0.001	2.09	4.54	1.76	0.01	1.14	2.72

additional focus on impacts of the COVID-19 pandemic (Anita Raj et al., 2020). NORC at the University of Chicago obtained the survey sample from a general population sample of California adults age 18 and older selected from their probability-based AmeriSpeak Panel and supplemented by non-probability panels to reach desired sample size. NORC funds and operates the AmeriSpeak Panel of randomly selected US households, inviting selected households into the study using US mail, telephone, and field interviewers (face to face). This panel provides sample coverage of approximately 97% of the U.S. household population. Households with P.O. Box only addresses, addresses not listed in the USPS Delivery Sequence File, and some newly constructed dwellings are excluded from this sample. Most AmeriSpeak households participate in online surveys, but non-internet households can participate by telephone or smartphone. For this study, NORC sampled from the California portion of the AmeriSpeak panel sample and supplemented it with respondents from nonprobability online opt-in panels to achieve the sample size of approximately 2000 participants. NORC conducted a statistical calibration to combine these samples and create a survey-weighted final sample that is representative of the California adults with regard to gender, age, race/ethnicity, income, education, employment status and region of the state. The recruitment rate for this study was 20%, and the response rate was 28%. These are standard for online panel surveys, which hover around 20–25% (Callegaro and DiSogra, 2009; Nulty, 2008).

The NORC team contacted participants to invite them into the 15-min online survey. Respondents were offered the cash equivalent of USD\$2 for completion of this survey. All participation was voluntary,

and the participant was allowed to decline questions or stop the survey at any time. Participants in the survey panels provided written informed consent at the time of enrolment in the panel, and agreed to privacy policies provided by NORC. Due to the sensitive nature of topics covered in the survey, the survey included a prompt on all pages with the following text, “If you are experiencing distress or discomfort, see this website for services in the state <https://victims.ca.gov/resources.aspx>.” To ensure confidentiality, our team only had access to completely anonymized data. Both NORC/University of Chicago and the University of California San Diego (Project #201780) Institutional Review Boards approved these study procedures.

2.2. Measures

Our dependent variables were past year experience of physical violence, past year experience of sexual violence, and past two-week mental health symptom severity.

We assessed participants’ past year experiences regarding three types of <i>physical violence</i> (physical abuse, threat or violence with a knife, threat or violence with a gun) and six types of <i>sexual violence</i> (verbal sexual harassment, homophobic or transphobic comments, cyber sexual harassment, physically aggressive sexual harassment, <i>quid pro quo</i> or coercive sexual harassment, and forced sex) (Anita Raj et al., 2020). We categorized the physical violence and sexual violence outcomes as yes/no based on whether they said yes to any of the specific subtypes of violence assessed or no to all items assessed.

Table 4a

Distributions of discrimination experiences and demographics by recent depression/anxiety symptoms among a state representative sample of California adults in March 2021 (N = 2114).

	Normal Symptoms		Mild Symptoms		Moderate Symptoms		Severe Symptoms	
	Unwt N	Wt %	Unwt N	Wt %	Unwt N	Wt %	Unwt N	Wt %
Everyday Discrimination								
None	1063	83.8%	357	64.8%	121	59.8%	62	51.7%
Single Form	111	9.9%	100	18.2%	58	26.9%	29	14.9%
Multiple Forms	55	6.3%	66	16.9%	44	13.3%	48	33.4%
Major experiences of race-based discrimination								
No	1144	91.0%	469	88.9%	204	93.8%	114	80.8%
Yes	85	9.0%	54	11.1%	19	6.2%	25	19.2%
Major experience of non-race-based discrimination								
No	980	82.4%	340	69.7%	128	63.9%	89	68.7%
Yes	249	17.7%	183	30.4%	95	36.1%	50	31.3%
Policing in Past Year								
No	1110	91.4%	414	81.6%	158	78.8%	84	76.4%
Yes	119	8.6%	109	18.4%	65	21.2%	55	23.6%
Gender								
Male	675	53.0%	266	46.8%	118	45.5%	66	32.5%
Female	554	47.0%	257	53.3%	105	54.5%	73	67.5%
Race								
White	867	48.8%	340	39.8%	139	36.2%	90	39.4%
Black	51	5.6%	21	5.4%	6	5.3%	7	6.2%
Asian	86	12.3%	43	15.2%	18	11.8%	4	5.5%
Hispanic	168	27.9%	90	30.7%	47	41.0%	34	45.0%
Other/multiple races	57	5.3%	29	8.8%	13	5.7%	4	4.0%
Age								
Continuous - mean (SD)	52.6 (17.4)		45.6 (15.4)		44.0 (16.2)		34.9 (11.6)	
Income Quintile								
Lowest	183	20.3%	98	25.0%	56	36.9%	38	47.9%
Second Lowest	218	21.0%	80	17.1%	42	18.2%	29	23.5%
Middle	212	17.9%	88	17.3%	37	17.9%	14	8.4%
Second Highest	290	19.7%	124	20.8%	35	12.7%	23	11.5%
Highest	326	21.1%	133	19.8%	53	14.3%	35	8.7%
Sexual Identity								
Heterosexual	1137	94.2%	451	86.1%	194	90.9%	109	73.9%
Gay/Lesbian/Bisexual/Other	92	5.8%	72	13.9%	29	9.1%	30	26.1%
Disability								
No	1015	85.3%	312	61.5%	101	50.0%	37	31.4%
Yes	214	14.7%	211	38.5%	122	50.0%	102	68.6%

We assessed depression and anxiety symptoms, and severity of symptoms, using the Patient Health Questionnaire-4 (PHQ-4), which assesses number of days in the past two weeks they experienced specific symptoms (e.g., “not being able to stop or control worrying” (Kroenke et al., 2009).

Response options ranged from “Not at all” = 0 to “Nearly every day” = 3, allowing for a range of 0–12 for the summated score. The Cronbach alpha for these four symptom items was 0.90. The severity of mental health symptom score as stipulated by the PHQ-4 tool is the sum of the four items, categorized as normal (0–2), mild (3–5), moderate (6–8), and severe (9–12) (Kroenke et al., 2009).

Our independent variables of interest were perceived experiences of everyday discrimination and perceived major experiences of racial/ethnic discrimination.

We assessed *everyday discrimination* using a modified five-item version of the Everyday Discrimination scale. The original scale has been previously validated in the US. (Williams et al., 1997) We asked if the participants experienced any of the following specific forms of everyday discrimination in a typical week, yes/no. Example items included: “People treat me as if I am not intelligent.” And “People treat me like I am dishonest.”

The Cronbach alpha for these five types of everyday discrimination was 0.62. We categorized responses as experiencing no forms of everyday discrimination, one form, or multiple forms. The perceived reason for the discrimination was not assessed.

We assessed *major experiences of discrimination* using the six-item Major Experiences of Discrimination Scale (abbreviated) (Sternthal et al., 2011). Example items included: “unfairly fired or denied a promotion” and “unfairly prevented from moving into a

neighborhood because the landlord/realtor refused to rent/sell a house/apartment.”

We did not conduct a Cronbach’s alpha for this measure, because the measure was not designed to assess a unitary construct. Hence, there is no expectation of these items to show good inter-correlation.

If respondents indicated experience of one or more forms of major discrimination, we then asked what the primary reason for this discrimination was, with answer choices: race/ethnicity, age, gender, religion, immigration situation (or assumption thereof), physical appearance, sexual orientation or gender identity, income level/social class, or other. Respondents could only select one primary reason; we categorized those who selected race/ethnicity as experiencing *race-based major discrimination*. We ultimately used a binary measure of race-based major discrimination, any experience vs none. We categorized participants who experienced at least one of the six forms of major discrimination but reported a primary reason other than race/ethnicity as having experienced *non-race-based major discrimination*. A binary measure was used for this predictor, any experience vs none. Because the primary reason for discrimination follow-up question allowed for a single response on the social factor most associated with these major experiences of discrimination, race-based major discrimination and non-race-based major discrimination were mutually exclusive.

We also included past year experience of policing as a separate form of major discrimination, based on the extensive data indicating that police are more likely to track males and racial/ethnic minorities (PPI, May 14, 2019) and its alignment with the definition of major discrimination (Williams et al., 2008). This measure was tied to past year experience. Using a single item measure, we asked participants whether

Table 4b

Unadjusted multinomial logistic regression analysis to assess associations between experiences of discrimination and recent depression/anxiety symptoms among a state representative sample of California adults in March 2021 (N = 2114).*

	Mild				Moderate				Severe			
	RRR	p-value	95% CI		RRR	p-value	95% CI		RRR	p-value	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Everyday Discrimination												
None	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Single Form	2.39	<0.001	1.55	3.69	3.82	<0.001	2.23	6.53	2.44	0.02	1.15	5.16
Multiple Forms	3.47	<0.001	2.11	5.71	2.96	0.001	1.59	5.48	8.58	<0.001	4.49	16.39
Major experiences of race-based discrimination												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.27	0.31	0.80	2.03	0.67	0.32	0.30	1.48	2.41	0.02	1.18	4.90
Major experience of non-race-based discrimination												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	2.03	<0.001	1.46	2.82	2.64	<0.001	1.71	4.07	2.13	0.007	1.23	3.68
Policing in Past Year												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	2.38	<0.001	1.54	3.69	2.85	<0.001	1.67	4.86	3.28	<0.001	1.78	6.04
Gender												
Male	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Female	1.28	0.19	0.96	1.71	1.35	0.15	0.90	2.02	2.34	0.001	1.39	3.95
Race												
White	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Black	1.19	0.62	0.61	2.32	1.27	0.64	0.46	3.49	1.36	0.57	0.47	3.91
Asian	1.52	0.07	0.97	2.38	1.29	0.46	0.66	2.51	0.55	0.34	0.17	1.86
Hispanic	1.35	0.10	0.95	1.92	1.98	0.004	1.25	3.14	1.99	0.01	1.15	3.47
Other/multiple races	2.05	0.01	1.16	3.64	1.45	0.37	0.65	3.22	0.93	0.91	0.25	3.38
Age												
Continuous	0.98	<0.001	0.97	0.98	0.97	<0.001	0.96	0.98	0.93	<0.001	0.91	0.95
Income Quintile												
Lowest	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Second Lowest	0.66	0.09	0.41	1.06	0.48	0.02	0.26	0.87	0.47	0.03	0.24	0.94
Middle	0.79	0.33	0.49	1.27	0.55	0.06	0.30	1.03	0.20	0.001	0.08	0.50
Second Highest	0.86	0.50	0.55	1.34	0.36	0.001	0.19	0.67	0.25	<0.001	0.12	0.52
Highest	0.77	0.22	0.50	1.17	0.38	0.002	0.20	0.69	0.18	<0.001	0.08	0.37
Sexual Identity												
Heterosexual	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Gay/Lesbian/Bisexual/Other	2.62	<0.001	1.64	4.20	1.63	0.11	0.89	2.96	5.73	<0.001	3.04	10.80
Disability												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	3.63	<0.001	2.62	5.02	5.80	<0.001	3.77	8.91	12.68	<0.001	7.19	22.34

*Reference is normal symptoms.

they had been stopped or approached by the police: in the past six months, in the past year but not past six months, ever but not in the past year, or had never been stopped by the police. We dichotomized responses as stopped in the past year or not, i.e., <i>policing</i> or no policing exposure. For those who had policing exposure in the past year, we also asked, “On the last occasion you were approached by the police, how do you think you were treated?” Response options were ‘very badly,’ ‘somewhat badly,’ ‘neither well nor badly,’ ‘reasonably well,’ or ‘very well.’ We provide these data descriptively for the 27 participants reporting it.

We included socio-demographic covariates for the social factors that could be the basis of discrimination experiences in adjusted models: self-defined gender, race/ethnicity, age, income, sexual identity, and disability status. Details on questions and variable constructions for these covariates are outlined in prior reports (GEH, May 13, 2021; Raj et al. September 2022). We categorized race/ethnicity as White, Black, Asian, Hispanic, and Other/multiple races due to small cell sizes for other racial/ethnic groups.

2.3. Data analysis

We present frequency data on all key variables for the total sample, overall and by each outcome. We also present correlation between the measures of discrimination. We then conducted unadjusted and adjusted logistic regressions to assess associations between experiences of discrimination and past year physical and sexual violence. We conducted unadjusted and adjusted multinomial logistic regressions to

assess associations between experiences of discrimination and mental health symptom severity. Adjusted models included all measures of discrimination, as well as gender, race/ethnicity, age, income, sexual identity, and disability. All analyses accounted for survey design and weighting to produce state-representative findings, and were conducted using STATA 15.1. Statistical significance was set at $p < 0.05$ for all odds ratios (ORs), adjusted odds ratios (AORs), relative risk ratios (RRRs), and adjusted relative risk ratios (aRRRs); 95% confidence intervals (CIs) are reported throughout.

3. Results

3.1. Sample and characteristics

The total number of Cal-VEX 2021 survey participants was 2203, but the analytic sample was restricted to participants providing responses to all discrimination, outcome, and demographic items, resulting in a final analytic sample of N = 2114 individuals. (Note: Non-binary participants were too small in number (n = 13) for inclusion in gender-stratified analyses.)

One quarter of participants (26.1%) regularly experienced everyday discrimination in public spaces in an average week (See Table 1.). One in ten respondents (10.0%) reported major experiences of race-based discrimination. Of these, 38% attributed this discrimination primarily to race/ethnicity, 18% to physical appearance, 10% age, and 9% gender. One in four respondents (23.9%) reported major experiences of discrimination for reasons other than race/ethnicity; of these, the most

Table 4c

Adjusted multinomial logistic regression analysis to assess associations between experiences of discrimination and recent depression/anxiety symptoms among a state representative sample of California adults in March 2021 (N = 2114).

	Mild aRRR	p-value	95% CI Lower	Upper	Moderate aRRR	p-value	95% CI Lower	Upper	Severe aRRR	p-value	95% CI Lower	Upper
Everyday Discrimination												
None	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Single Form	1.38	0.19	0.85	2.23	2.02	0.02	1.13	3.60	0.74	0.55	0.27	2.00
Multiple Forms	2.01	0.02	1.14	3.55	1.57	0.24	0.74	3.33	3.29	0.001	1.62	6.68
Major experiences of race-based discrimination												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.19	0.55	0.67	2.13	0.61	0.33	0.23	1.63	2.71	0.02	1.19	6.19
Major experience of non-race-based discrimination												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.71	0.005	1.17	2.48	1.87	0.01	1.19	2.94	1.79	0.11	0.88	3.64
Policing in Past Year												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.51	0.10	0.92	2.47	1.63	0.14	0.85	3.14	1.27	0.51	0.62	2.61
Gender												
Male	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Female	1.44	0.02	1.05	1.98	1.34	0.21	0.85	2.10	2.40	0.005	1.29	4.46
Race												
White	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Black	0.77	0.48	0.38	1.57	1.02	0.97	0.38	2.75	0.39	0.08	0.13	1.13
Asian	1.54	0.08	0.95	2.51	1.50	0.29	0.71	3.15	0.65	0.58	0.14	2.99
Hispanic	0.92	0.69	0.61	1.39	1.15	0.62	0.66	2.02	0.69	0.29	0.35	1.37
Other/multiple races	1.54	0.18	0.82	2.90	1.20	0.69	0.49	2.93	0.49	0.34	0.11	2.13
Age												
Continuous	0.98	<0.001	0.97	0.99	0.97	<0.001	0.96	0.99	0.93	<0.001	0.91	0.95
Income Quintile												
Lowest	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Second Lowest	0.75	0.27	0.45	1.26	0.55	0.08	0.29	1.06	0.57	0.14	0.27	1.20
Middle	0.99	0.96	0.60	1.64	0.73	0.37	0.37	1.45	0.36	0.07	0.12	1.10
Second Highest	1.08	0.75	0.68	1.72	0.47	0.03	0.24	0.91	0.45	0.07	0.19	1.06
Highest	0.99	0.97	0.62	1.59	0.54	0.07	0.28	1.04	0.33	0.02	0.13	0.81
Sexual Identity												
Heterosexual	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Gay/Lesbian/Bisexual/Other	1.88	0.008	1.18	3.01	0.92	0.81	0.45	1.86	2.84	0.01	1.34	6.00
Disability												
No	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Yes	3.45	<0.001	2.44	4.88	5.25	<0.001	3.27	8.42	11.40	<0.001	5.98	21.73

*Reference is normal symptoms.

common reasons for discrimination were age (22%), income level/socioeconomic status (15%), physical appearance (14%), and gender (14%). One in eight (13.6%) were approached or stopped by police in the prior year; of those who were approached, 65.7% reported that they were treated reasonably or very well, 23.0% reported neutral treatment, and 11.3% reported that they were treated somewhat or very badly (result not shown). Though theoretically related, our measures of discrimination were very weakly correlated in the study sample; everyday discrimination and major experiences of race-based discrimination: $\rho = 0.26$; everyday discrimination and policing: $\rho = 0.30$; and major experiences of race-based discrimination and policing: $\rho = 0.12$. Nonetheless, they were significantly associated, suggesting interrelationships across forms of discrimination.

We also assessed each form of discrimination reported by racial/ethnic group and found white participants least likely and Black participants most likely to report everyday discrimination (16.5% and 43.7%, respectively) and race-based major discrimination (3.2% and 45.2%, respectively). Hispanic participants were most likely to report past-year policing across racial/ethnic groups (20.8% vs. 9.1–13.3% for the other racial/ethnic groups categorized in this study).

Past year physical violence was reported by 7% of respondents, and 13.4% had experienced past year sexual violence (See Table 1.). More than half of participants (56.1%) reported normal levels of depression and/or anxiety symptoms in the prior two weeks, 25.4% reported mild levels, 10.7% reported moderate levels, and 7.8% reported severe levels of depression and/or anxiety symptoms in the past two weeks (See Table 1.).

3.2. Associations between discrimination and outcomes

In unadjusted regression models, everyday discrimination, non-race-based major discrimination, and policing experience were associated with significantly greater odds of past-year physical violence experience ($p < 0.001$) (See Table 2.). In fully adjusted models, experiences of everyday discrimination (single form AOR 5.0, 95% CI 2.5–10.3, $p < 0.001$; multiple forms AOR 2.6, 95% CI 1.1–5.8, $p = 0.02$) remained significantly associated with increased odds of physical violence, but major experiences of race-based and non-race-based discrimination were not significantly associated with the outcome. Policing exposure remained associated with greater odds of past-year physical violence in fully adjusted models (AOR 3.8, 95% CI 2.0–7.1, $p < 0.001$).

In unadjusted regression models, everyday discrimination, non-race-based major discrimination, and policing experience were associated with significantly greater odds of past-year sexual violence experience ($p < 0.001$) (See Table 3.). Experience of race-based major discrimination was also associated with greater likelihood of sexual violence in unadjusted comparisons (OR 2.1, 95% CI 1.2–3.5, $p = 0.01$). In fully adjusted models, experiences of everyday discrimination (single form AOR 1.7, 95% CI 1.0–2.9, $p = 0.047$, multiple form AOR 2.5, 95% CI 1.4–4.4, $p = 0.002$) and experiences of race-based major discrimination (AOR 2.0, 95% CI 1.1–3.8, $p = 0.03$) remained significantly associated with increased odds of sexual violence. Experience of non-race-based major discrimination (AOR 2.4, 95% CI 1.5–3.9, $p = 0.001$) and policing (AOR 2.6, 95% CI 1.6–4.2, $p < 0.001$) were also associated with greater odds of past-year sexual violence.

Individuals who experienced severe depression and/or anxiety

symptoms in the past two weeks more frequently reported experiences of everyday discrimination than those who reported normal symptom levels (48.3% vs 16.2%) and more frequently reported race-based major discrimination (19.2% vs 9.0%) (See Table 4a.). Those who experienced severe symptoms also more frequently reported non-race-based major discrimination (31.3% vs 17.7%) and being approached or stopped by the police in the past year (23.6% vs 8.6%). In unadjusted multinomial regression models, everyday discrimination, non-race-based major discrimination, and policing experience were associated with significantly greater risk of mild, moderate, and severe mental health symptoms ($p < 0.05$) (See Table 4b.). Experience of race-based major discrimination was also associated with greater risk of severe mental health symptoms in unadjusted comparisons (RRR 2.4, 95% CI 1.2–4.9, $p = 0.02$). In fully adjusted models, experience of multiple forms of everyday discrimination (aRRR 3.3 95% CI 1.6–6.7, $p = 0.001$) and experience of race-based major discrimination (aRRR 2.7, 95% CI 1.2–6.2, $p = 0.02$) remained significantly associated with increased risk of severe depression and/or anxiety symptoms (See Table 4c.). Experience of a single form of everyday discrimination was also associated with greater risk of moderate mental health symptoms (aRRR 2.0, 95% CI 1.1–3.6, $p = 0.02$), and experience of multiple forms of everyday discrimination was associated with greater risk of mild mental health symptoms (aRRR 2.0, 95% CI 1.1–3.6, $p = 0.02$). Experience of non-race-based major discrimination was significantly associated with mild (aRRR 1.7, 95% CI 1.2–2.5, $p = 0.005$) and moderate (aRRR 1.9, 95% CI 1.2–2.9, $p = 0.007$) mental health symptom severity. Past year policing experience was not associated with any level of mental health symptom severity.

4. Discussion

Findings from this study demonstrate that experiences of everyday discrimination, major experiences of racial discrimination, and heavy policing are associated with higher odds of experiencing physical violence, sexual violence, and severe symptoms of depression and anxiety. These findings are consistent with prior research implicating discrimination as a key risk factor for chronic stress and poor mental health outcomes among racial/ethnic minority populations (APA, October 31, 2019). Our analyses extend this work by documenting the associations between discrimination and victimization from violence during the pandemic. Prior research suggests that both violence victimization and mental health issues have increased during the pandemic (Connor et al., 2020; de Figueiredo et al., 2021; A. Raj et al., 2020a,b), and this study suggests that previously documented increases in experiences of race/ethnicity related discrimination during the pandemic (Strassle et al., 2022) may have exacerbated violence and mental health risks. Additionally, results indicate that experiences of non-race/ethnicity-based discrimination – most commonly tied to age, income/class, and gender or sexual identity-also contribute to victimization and adverse health outcomes. Findings support the use of an intersectional analysis in our understanding of discrimination and its impacts (Fagrell Trygg et al., 2019).

An important finding is that everyday experiences of discrimination tend to have a larger association with all our outcomes as compared with major race-based discrimination. This difference could be attributed, at least partially, to the different timeframes for both measures. Everyday discrimination assesses current experiences of discrimination, whereas the measure for major discrimination assesses lifetime experiences of discrimination. Because such experiences could have occurred months, years, or decades prior to the survey, they may be less significant relative to more immediate and chronic experiences of everyday discrimination. These findings are consistent with prior research showing stronger associations between everyday discrimination and mental health outcomes as compared to major discrimination (Ayalon and Gum, 2011). Nevertheless, it is important to note that race-based major discrimination was significantly associated with increased risk for sexual violence

and severe mental health symptoms. Major race-based discrimination remains a key risk factor, as it can affect the socioeconomic stability and well-being of individuals and perceptions of options to help ensure safety.

We found that policing exposure is also associated with greater risk for violence, though not with mental health concerns. It may be that policing is more likely to happen in contexts where violence occurs. Environments with heavy policing and police surveillance may also be places where victimization from violence is more likely. Racial residential segregation is linked with abuses from police for Black and Latinx residents (Johnson et al., 2019). As a result, policing in these neighborhoods may be an everyday reality for these residents and may not be associated with mental health outcomes but are associated with an increased risk of victimization (Lodge et al., 2021). Regardless, given the history of racial discrimination in policing, and growing concerns regarding abusive police during the pandemic (Sewell, 2020), more research is needed on this.

We also need more research on the exact mechanisms underlying the association between discrimination and victimization. Our study results may be indicative of the dual risk of discrimination and victimization among racial/ethnic minority populations. Discrimination may increase the risk for violence, or may co-occur with violence. More research is needed to understand whether experiences of discrimination are directly associated with specific forms of victimization. For example, instances of verbal discrimination may escalate into instances of physical aggression, increasing the risk for physical and sexual violence. These results also highlight the importance of employing an intersectional lens when assessing the risk for victimization and poor mental health outcomes. Prior research documents that violence often occurs in multiple forms against those who experience victimization. Multiple forms of everyday racism can take an even bigger toll on mental health.

5. Limitations

We must consider the findings in light of certain study limitations. As noted, the study is cross-sectional, so we cannot assume temporal ordering or causality. Our data relied on self-report and are thus subject to recall and social desirability biases. Recall for violence is likely high given the salience of the issue, and recall of mental health symptoms is likely high due to the recall time being the past two weeks. However, participants may under-report both outcomes given the stigma attached to both victimization and mental health concerns. We used previously validated discrimination scales, but these too may not fully reflect all experiences of discrimination for participants. The Everyday Discrimination scale used in this study did not allow for clarity on what characteristics resulted in discrimination, and there is some indication of variability in the scale by demographic characteristics (Harnois et al., 2019). We also only have measures of perception of discrimination and not objective measures of discrimination. Meta-analysis of subjective (perception) versus more objective measures of discrimination show stronger effects of objective measures on well-being including mental health outcomes (Schmitt et al., 2014). Hence, our findings are likely yielding conservative estimates.

The study used an online probability panel that facilitates engagement of a state representative sample, but the participation rate is low (32%), which is typical of online studies (Callegaro and DiSogra, 2009; Nulty, 2008). At the same time, random sampling approaches would be better to reduce potential biases inevitable in on-line rapid surveys, because standard approaches likely under-represent those affected by violence and mental health issues (Pierce et al., 2020). Additionally, while this study is weighted to yield a state representative sample, it is also a convenience sample of online panel participants, though efforts were made to reduce some of the biases from typical online surveys as much as possible, including area probability and address-based recruitment and inclusion of non-internet and non-cell phone households. A non-response follow-up campaign was also used to increase

participation and representation. Additionally, generalizability of findings may be limited to adults in California and may not reflect younger populations or populations in other states.

6. Conclusion

In summary, this cross-sectional study of discrimination, violence, and mental health of California adults, undertaken during the COVID-19 pandemic in 2021, demonstrates that experiences of discrimination, particularly everyday discrimination, are associated with increased risk for physical and sexual violence as well as depression and anxiety symptoms during the pandemic. Further, we see that everyday discrimination, which can manifest as regularly occurring micro-aggressions, more than major racial discrimination experiences (e.g., discrimination resulting in non-hiring or denial of bank loans from financial institutions), may be driving these vulnerabilities. Experiences with different types of discrimination, including policing, are also associated with an increased risk for violence victimization. This work provides greater insight into some aspects of systemic racism and health disparities related to trauma and mental health (Boynton-Jarrett et al., 2021) and documents the need to focus on anti-racist care and service provision as part of COVID-19 rebuilding efforts. Importantly, given the other attributes linked to discrimination, in particular age and sex/gender, more work is needed to recognize that these forms of discrimination also persist and yield harm. We also need further methodological work to disentangle the impacts of everyday versus major experiences of discrimination in addition to identifying mechanisms underlying the discrimination-victimization link. Nonetheless, the findings emphasize the need to address social determinants of health with an intersectional lens and as part of strengthening community health for both pandemic management and post-pandemic rebuilding (Bleser et al., 2022). Further, these findings support the growing body of evidence that shows that we cannot achieve health equity and human dignity without ending all forms of discrimination, including racial/ethnic discrimination (Bleser et al., 2022).

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Data availability

Data will be made available on request.

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