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# Racial Disparities in Mental Health and Substance Use during the COVID-19 Pandemic

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## Background

The COVID-19 pandemic deepened existing racial and ethnic disparities in mental health, substance use, and economic hardship. This study examined these disparities using national survey data, with a focus on age and race/ethnicity interactions.

## Methods

**Data Source:** 2021 National Survey on Drug Use and Health (NSDUH)

**Sample:** 51,740 adults

**Outcomes:** Perceived pandemic impact on mental health, alcohol/drug use, and finances

**Main Predictors:** Race/ethnicity (White, Black, Hispanic, Asian, Other)

**Covariates:** Age, marital status, income, health behaviors

**Analysis:** Ordered logistic regression models with and without age × race interaction; all estimates weighted and analyzed in R ( $\alpha = 0.05$ )

## Results

Most respondents were White (61.1%), aged 18–49 (63%), and never married (55%).

~10% reported poor health; ~90% did **not** misuse prescription or illicit drugs.

60% experienced financial hardship; mental health impacts were common.

### Race & Mental Health:

Black and Hispanic participants had **lower** odds of reporting poor mental health.

Asian participants had **higher** odds compared to Whites.

Older Black adults (50+) reported **worse** outcomes.

### Substance Use:

Minorities reported **lower** increases in alcohol/drug use.

### Financial Impact:

All minority groups, especially Black and “Other” groups, had **higher** odds of financial strain.

Age moderated several of these associations.

	Mental health AOR, 95%CI	Mental health (with interaction term of age and race-ethnicity) AOR, 95%CI	Alcohol use AOR, 95%CI	Alcohol use (with interaction term of age and race-ethnicity) AOR, 95%CI
<b>Age</b>				
12-17				
18-29	0.79(0.71,0.89)**	0.86(0.72,1.01)	1.03(0.93,1.13)	1.32(1.17,1.49)**
30-49	0.64(0.56,0.73)**	0.69(0.57,0.83)**	1.13(0.99,1.28)	1.54(1.31,1.82)**
≥50	0.49(0.43,0.55)**	0.48(0.41,0.56)**	1.02(0.89,1.18)	1.26(1.07,1.49)**
<b>Race</b>				
White				
Black	0.76(0.69,0.85)**	0.69(0.58,0.81)**	0.69(0.62,0.75)**	1.09(0.98,1.21)
Asian	1.13(1.01,1.27)*	1.26(0.97,1.64)	0.71(0.6,0.84)**	1.07(0.98,1.17)
Hispanic	0.83(0.75,0.9)**	0.91(0.78,1.07)	0.6(0.53,0.67)**	1(0.85,1.18)
Others	0.93(0.79,1.08)	1.19(0.86,1.64)	0.87(0.72,1.05)	0.84(0.7,1.01)

Table 2. Association of racial and ethnic differences in perceived effects of the COVID-19 pandemic on drug use and financial condition, estimated by multivariable ordered logistic regressions: National Survey on Drug Use and Health, 2021.

	Drug use AOR, 95%CI	Drug use (with interaction term of age and race-ethnicity) AOR, 95%CI	Financial condition AOR, 95%CI	Financial condition (with interaction term of age and race-ethnicity) AOR, 95%CI
<b>Age</b>				
12-17				
18-29	1.29(1.13,1.47)**	1.5(1.29,1.75)**	2.6(2.33,2.91)**	2.4(2.11,2.74)**
30-49	1.24(1.05,1.46)*	1.42(1.17,1.73)**	2.49(2.2,2.81)**	2.22(1.92,2.56)**
≥50	1.04(0.84,1.27)	1.06(0.86,1.32)	1.42(1.23,1.65)**	1.19(1.01,1.39)*
<b>Race</b>				
White				
Black	0.76(0.66,0.88)**	0.88(0.71,1.09)	1.6(1.47,1.75)**	1.07(0.9,1.27)
Asian	0.86(0.72,1.02)	0.99(0.72,1.37)	1.57(1.32,1.88)**	1.5(1.11,2.03)**
Hispanic	0.85(0.76,0.96)**	0.94(0.77,1.14)	1.5(1.4,1.61)**	1.26(1.06,1.51)*
Others	0.68(0.56,0.83)**	0.94(0.65,1.35)	1.55(1.35,1.79)**	0.96(0.73,1.26)

Table 1. Association of racial and ethnic differences with perceived effects of the COVID-19 pandemic on mental health and alcohol use, estimated by multivariable ordered logistic regressions: National Survey on Drug Use and Health, 2021.

## Discussion

The pandemic worsened pre-existing inequities. Older Black adults and Asian communities bore disproportionate mental health burdens, while most minorities faced financial stress. These findings highlight structural disparities in healthcare and economic systems.

## Conclusions

Tailored interventions are needed for vulnerable racial/ethnic and age groups. Policies should promote health equity and address systemic barriers, both during and beyond public health crises.

## References

Chatters, L. M., Taylor, H. O., & Taylor, R. J. (2020). Older Black Americans During COVID-19: Race and Age Double Jeopardy. *Health education & behavior: the official publication of the Society for Public Health Education*, 47(6), 855–860. <https://doi.org/10.1177/1090198120965513>

Huang, J. T., Krupenkin, M., Rothschild, D., & Lee Cunningham, J. (2023). The cost of anti-Asian racism during the COVID-19 pandemic. *Nature human behaviour*, 7(5), 682–695. <https://doi.org/10.1038/s41562-022-01493-6>

Obinna D. N. (2021). Confronting Disparities: Race, Ethnicity, and Immigrant Status as Intersectional Determinants in the COVID-19 Era. *Health education & behavior: the official publication of the Society for Public Health Education*, 48(4), 397–403. <https://doi.org/10.1177/10901981211011581>

Phiri, P., Delanerolle, G., Al-Sudani, A., & Rathod, S. (2021). COVID-19 and Black, Asian, and Minority Ethnic Communities: A Complex Relationship Without Just Cause. *JMIR public health and surveillance*, 7(2), e22581. <https://doi.org/10.2196/22581>



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