Older Adults' Preventive Behaviors During COVID-19 Outbreak: Application of Multiple Disadvantage Model

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Abstract

This study explored older adults' preventive behaviors during the pandemic. A sample of 2982 community-dwelling older adults was extracted from the United States National Health and Aging Trends Study. Results showed that number of preventive behaviors was decreased with rundown neighborhood and age; but increased with Blacks, Hispanics, other ethnic minorities, income, female, number of persons in household, social cohesion, social network, family/peer support, severity of COVID-19 symptoms, and anxiety during COVID-19 outbreak. The study results imply that joint effort of government and ethnic minority advocacy groups in public health education should focus on preventive measures as well as racial disparities in health, and that rejuvenating rundown neighborhoods, promoting neighboring, providing stimulus checks and unemployment insurance, and maintaining connection with family and friends will promote preventive behaviors.

Keywords COVID-19 · Preventive behaviors · Older adults · Racial disparities · Neighborhood

Introduction

Studies in the United States have indicated that COVID-19 infections and deaths are associated positively with the nation's population of older adults (Ali et al., 2021; Peters, 2020; Zhang & Schwartz, 2020). Among Americans hospitalized with COVID-19, the percentage who are age 65 and up reached 2.2–3.2 times that for adults under 65 (CDC, 2019). To limit the virus's spread and breakthrough, the

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federal Centers for Disease Control and Prevention (CDC) (Centers for Disease Control & Prevention, 2020, 2021) recommends—even for the fully vaccinated—preventive behaviors including wearing a mask, washing hands, staying six-plus feet away from others, avoiding crowded indoor spaces, staying home, and disinfecting touched surfaces. Keeping a six-foot "social distance" has proved a strong preventive measure against COVID-19 infection (Courtemanche et al., 2020). One study shows nearly 98% of older Americans practice social distancing (Callow et al., 2020), but a more complete picture is needed of how thoroughly older Americans adopt this and other preventive behaviors and why they do so. Thus it is important to identify factors that may play a role in the preventive behaviors of older Americans during the COVID-19 outbreak.

Literature Review

The present investigation of factors in older Americans' COVID-19 preventive behaviors applied the *multiple disadvantage model*. The model proposes that socioeconomic disadvantages and the distress associated with them negatively affect family and social relationships. Socioeconomic disadvantage may, moreover, exert negative influence on older adults' adoption of preventive behaviors related to health. In the past the multiple disadvantage model has been used to explain racial disparities in victimization (Lo et al., 2013). The present researchers applied the model to test whether preventive behaviors practiced by older adults during the COVID-19 outbreak appeared to relate to five factors: social disorganization, social structural factors, social relationships, health/mental health, and health insurance (see Fig. 1).

Social Disorganization

Studies in the United States report COVID-19 incidence and death rate alike to be associated positively with low-income, disorganized, and/or materially deprived
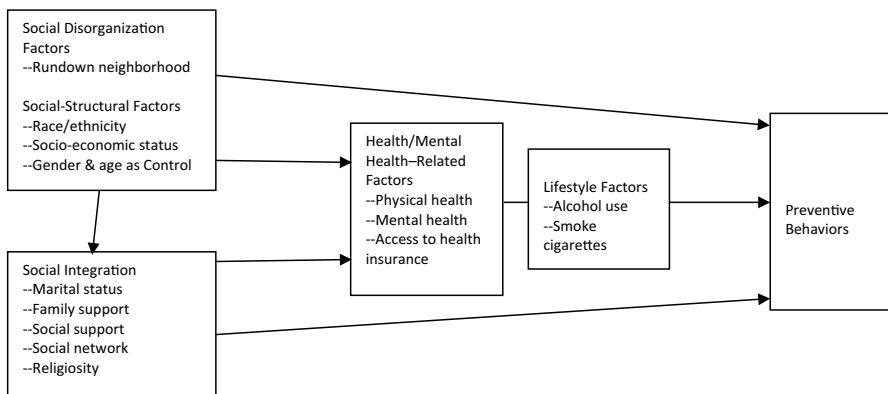

Fig. 1 The multiple disadvantage model explaining older adults' preventive behaviors

neighborhoods (Hatef et al., 2020; Khanijahani & Tomassoni, 2021; Madhav et al., 2020; Singu et al., 2020; Zhang & Schwartz, 2020). High risk of infection in such neighborhoods stems from health disparities and social injustice (Madhav et al., 2020). Many individuals from low-income neighborhoods work outside the home and find it difficult to practice preventive behaviors like social distancing (Jay et al., 2020).

Social Structural Factors

The multiple disadvantage model proposes that historical and structural inequity frustrates individuals of minority ethnicity, as does the social disorganization of their communities (Lo et al., 2013). Frustration, a form of distress, may affect adoption of preventive behaviors by minority Americans. To date research seems to show the incidence of COVID-19 and related death rates are associated positively with the proportions of neighborhood populations made up of residents of minority ethnicity (Ali et al., 2021; Hatef et al., 2020; Hu et al., 2020; Khanijahani & Tomassoni, 2021; Krieger, 2020). In the U.S. the COVID-19 death rate is disproportionately high among Blacks (Singu et al., 2020).

Additionally, the performance of preventive behaviors—notably social distancing—can be made impossible by the duties entailed in many low-paid jobs (Jay et al., 2020; Li et al., 2020). Low-wage workers are thus unlikely to adopt preventive behaviors, at least on the job. In addition, one study of older adults found preventive behaviors to be positively associated with female gender; it observed no association between such behaviors and education level (Lu et al., 2021).

Social Relationships

Residents of neighborhoods that demonstrate social cohesion (or strong social relationships) enjoy reduced stress and better individual health (Singu et al., 2020). Such cohesiveness may promote older adults' preventive behaviors. Even relationships created via use of social media have shown positive association with the adoption of COVID-preventing behaviors (Chen et al., 2021; Li et al., 2020). One study with older Americans found that social support and family support protected them against pandemic-triggered stress and anxiety (Chen et al., 2021). In general, mutually supportive relationships appear to motivate caring and a desire to protect others by practicing COVID-preventing behaviors.

Health and Mental Health

COVID-19 infection is positively associated with presence of underlying illnesses or of co-morbidity (CDC, 2019; Singu et al., 2020). When it comes to underlying illnesses, moreover, older Black Americans are at higher risk for hypertension than older Whites are, while older Hispanic adults are more likely to have diabetes than older Whites (Arasteh, 2018). Research finds older Americans' physical health to be negatively associated with preventive behaviors, except among those knowing an

individual(s) infected with COVID-19 (Lu et al., 2021); for those individuals, this association takes a positive direction.

Data collected from older Americans during the pandemic suggest fear of contracting the virus generates severe depression and severe anxiety at rates of 11.4% and 0.8%, respectively (Callow et al., 2020). At the same time, developing depression due to COVID-19 fears fosters the adoption of preventive behaviors in this population (Christensen et al. 2020). On the other hand, the use of alcohol or tobacco have been associated with elevated risk of COVID infection (Ali et al., 2021; Saengow et al., 2021). Nevertheless, one study in California found that smokers had upped their consumption of cigarettes during mandatory lockdown related to the virus (Gonzalez et al., 2021).

Health Insurance

Adoption of preventive behaviors by older adults is evidently related to their possession of health insurance. As a form of ex ante moral hazard, insured persons are less likely to adopt self-protective behaviors (Bhattacharya & Packalen, 2012) but more likely involved in risky health behaviors than uninsured persons (Dave & Kaestner, 2009).

Within the reviewed literature, a small number of U.S. studies focused on factors in older adults' adoption of COVID-19–preventing behaviors. The present study hypothesized that older adults' practice of preventive behaviors (1) would be negatively associated with residence in deprived neighborhood, education level, employment status, mental health problems, substance use, and possession of medical insurance; and (2) would be positively associated with minority ethnicity/race, female gender, income, being married, social relationships, and physical health.

Methods

Sample

The present study employed a nationally representative sample of 2982 adults aged 65 or more, extracted from the public-use data set Health and Aging Trends (NHATS) COVID-19 Round-10 Beta File; the present study also examined this sample's Round-1 and Round-9 interview data. In 2020, amidst the COVID-19 outbreak, NHATS researchers interviewed 3,188 older adults (the survey response rate was 83.5%), measuring their COVID-19 symptoms, virus transmission–limiting preventive behaviors, chronic illness, mental health, and residential factors (Freedman & Hu, 2020). Also measured were general physical health, height and weight, activities, and environment (Kasper & Freedman, 2020). The present sample included only NHATS respondents who resided in local communities. Since only 6.5% of older adult population in U.S. reside in nursing homes or assisted living facilities (Institute of Medicine, 2010), the present study excluded any NHATS respondent who lived in a nursing home or other residential care facility. The NHATS research

was longitudinal, comprising 9 rounds of interviews between 2011 and 2019. The initial sample for NHATS was made up of 8,245 older adults.

Measures

Our outcome variable, *number of preventive behaviors*, gave the total number out of 9 possible preventive behaviors an older adult reported engaging in order to limit spread of the COVID-19 virus. Those preventive behaviors were as follows: wash hands frequently/use hand sanitizer frequently; avoid contact with fellow household members; avoid contact with people outside household; keep at minimum a 6-foot distance from people outside household; limit gathering with family members outside household; avoid restaurants/bars; limit shopping and similar errands; wear a face mask outside home; and avoid touching face while outside home. Higher numbers for this outcome variable suggested relatively substantial engagement in these preventive behaviors.

Our study employed 7 groups of explanatory variables. These groups comprised social disorganization measures; social structural measures; demographic characteristics; measures of social relationships and social support; health measures; mental health measures; and medical insurance measures. The social disorganization group was actually a single explanatory variable, *rundown neighborhood*, which gave the total score from responses to queries about whether a respondent's neighborhood had "litter, broken glass, or trash on sidewalks and streets"; "graffiti on buildings and walls"; and "vacant or deserted houses or storefronts." The response scale for each of these 3 items was as follows: 1 (*none*), 2 (*a little*), 3 (*some*), 4 (*a lot*). Higher scores suggested relatively rundown or deprived neighborhoods. The Cronbach's alpha for the items was 0.67.

The social structural group of explanatory variables covered ethnicity/race, education level, employment status, and income for the sample of older adults. *White* provided the reference for the ethnicity/race variable, with 3 dummy variables also employed: *Black*, *Hispanic*, and *other ethnicity/race*. The continuous measure *education level* noted the highest education completed by an older adult, as follows: 0 (*no schooling*), 1 (*1st grade–12th grade*), 2 (*graduated high school or GED*), 3 (*vocational school*), 4 (*some college*), 5 (*associate degree*), 6 (*undergraduate degree*), 7 (*master's/doctoral/professional degree*). *Employed* (yes/no) was a dichotomous measure in this study, respondents reporting (when interviewed by NHATS) whether they were employed or not employed. Income was represented by the variable *family income-to-poverty ratio*. It gave the percentage of federal poverty level represented by a respondent's household income. The present analysis also involved 2 demographic variables as controls during modeling: *female* (versus *male*) and *age*. Age was measured at 6 levels: 1 (*65–69 years*), 2 (*70–74 years*), 3 (*75–79 years*), 4 (*80–84 years*), 5 (*85–89 years*), and 6 (*90 years or older*).

The group of social relationships and social support variables comprised 6 measures. *Married/cohabiting* indicated dichotomously whether each respondent was married or cohabiting with a partner, implying access to the support of a spousal relationship. *Number of persons in household* was the total number of persons living

in the household also occupied by the respondent, implying access to the support of fellow household members. We measured *social cohesion* using 3 items yielding a single total score; a higher total score implied greater social cohesiveness. Each item was a query in the form of a statement to be endorsed, or not, via offered responses, as follows: 3 (*agree a lot*), 2 (*agree a little*), and 1 (*do not agree*). The 3 statements affirmed that in general adult residents of one's own neighborhood (*a*) know each other very well, (*b*) help each other, and (*c*) are trustworthy. The Cronbach's alpha for the items was 0.75. The explanatory variable *social network* gave the number of persons in each respondent's social network, higher numbers suggesting more substantial social support. The dichotomous variable *family/peer support* measured simply whether the respondent had visits with family or friends, while *peer/religious group support* similarly indicated dichotomously whether each respondent participated in the activities of a religious group or peer organization. Finally, the dichotomous explanatory variable *social media use* denoted whether, in the month preceding interview, a respondent had visited social network sites online.

The variables group describing respondent health assessed their general physical health, chronic illnesses, and COVID-19 symptoms. Offered responses for self-reporting *physical health* were as follows: 5 (*excellent*), 4 (*very good*), 3 (*good*), 2 (*fair*), and 1 (*poor*). *Number of chronic illnesses* gave the total number out of 9 possible chronic illnesses a respondent reported having. The nine were heart disease, high blood pressure, arthritis, osteoporosis, diabetes, lung disease, dementia, cancer, and obesity (specifically, a body mass index of 30 or more, calculated from self-reported weight and height) (Singu et al., 2020). *Severity of COVID-19 symptoms* was a variable describing the seriousness or difficulty of coronavirus infection symptoms a respondent indicated having had. Respondents rated their symptoms via a scale comprising 0 (*none*), 1 (*mild*), 2 (*moderate*), 3 (*severe*), and 4 (*very severe*). The final variable in the health group was the dichotomous *other household members had COVID-19 symptoms*, used to describe the presence in respondents' households of other persons infected with COVID-19.

The mental health explanatory variables group measured self-reported depression and anxiety before and during the COVID-19 outbreak, plus alcohol and cigarette use during the outbreak. The variable *depression in Round-9 interview* was dichotomous and denoted presence of depression per scores from the Patient Health Questionnaire-2, or PHQ-2. Total scores of 5 or more on the 2-item PHQ-2 suggest depressive disorder is present (Lowe et al., 2010). The two items are "had little interest or pleasure in doing things in last month" and "felt down, depressed, or hopeless in last month". The variable *anxiety in Round-9 interview* indicated dichotomously whether a respondent had anxiety disorder. Presence of the disorder was denoted per scores from the 2-item Generalized Anxiety Disorder-2 scale, or GAD-2. Total scores of 5 or more on GAD-2 suggest anxiety disorder (Lowe et al., 2010). The two items are "felt nervous, anxious, or on edge in last month" and "had been unable to stop or control worrying in last month". The 4 items making up these scales all employed the following offered responses: 1 (*not at all*), 2 (*several days*), 3 (*more than half the days*), and 4 (*nearly every day*). Cronbach's alphas for PHQ-2 and GAD-2 are 0.60 and 0.65, respectively. The mental health variable *depression during COVID-19 outbreak* noted how sad or depressed our respondents felt across a

typical week of the outbreak; the variable *anxiety during COVID-19 outbreak* noted how worried or anxious they felt across a typical week of the outbreak. These two variables both employed the 4-point response scale 1 (*not at all*), 2 (*mild*), 3 (*moderate*), and 4 (*severe*). *Alcohol use during COVID-19 outbreak* was the self-reported level of alcohol use: 0 (*did not drink alcohol before and during outbreak*), 1 (*less*), 2 (*same amount*), and 3 (*more*). Similarly, *smoking during COVID-19 outbreak* was the self-reported level of smoking cigarettes: 0 (*did not smoke before and during outbreak*), 1 (*less*), 2 (*same amount*), and 3 (*more*).

The single dichotomous variable *health insurance* constituted the medical insurance group. It indicated if a respondent was or was not covered by either Medicare Part D, by some other prescription coverage, by a Medigap or Medicare supplement, by Medicaid, by TRICARE, or by a private health insurance program.

As already noted, the variables just outlined were extracted from 3 rounds of NHATS interviews (see Table 1). The present study was undertaken as a temporal-ordering causal analysis, and we assumed that explanatory variable measures deriving from Round-1 and Round-9 interviews would exert lagged effects on the outcome variable (Finkel, 1995). However, we also assumed some other explanatory variables measured for the same period as the outcome variable would exert instantaneous impacts on the outcome (Finkel, 1995): We anticipated that these other variables would have causal impacts on the outcome that, although exhibiting "lag," would lag more briefly than the time elapsed between interviews.

Data Analysis

Our outcome variable number of preventive behaviors is a continuous variable, and NHATS researchers employed a clustering sample design. Our data analysis, then, called for use of STATA survey procedures for regression (featuring linearized variance estimations of robust standard errors). Our analysis also employed the clusters and Round-9 sampling weights provided in NHATS (our sample consisted of 56 clusters). Preliminary analysis of tolerance statistics (≥ 0.50) and correlations ($-0.40 \leq r \leq 0.69$) suggested no multicollinearity problems among our explanatory variables.

Results

Concerning the outcome variable, the obtained descriptive statistics showed that, on average, the number of preventive behaviors engaged in by this sample of older Americans was 7.1 out of 9 possible. Concerning the employed explanatory variables, obtained descriptive statistics can be seen in Table 1.

Results of multivariate analysis confirmed that the hypothesized model differed significantly from the null ($F = 8.55$; $p < 0.01$; see Table 2). The explanatory variables accounted for 9.5% of preventive behaviors (adjusted $R^2 = 0.095$). Rundown neighborhood ($b = -0.17$; $p < 0.05$) and age ($b = -0.07$; $p < 0.05$) were associated negatively with the number of preventive behaviors. On the other hand, the outcome

Table 1 Descriptive statistics of the variables (n = 2982)

	Percent	Mean	Range	*sd*
Outcome variable				
Number of preventive behaviors[a]		7.1	0–9	1.8
Explanatory variables				
Rundown neighborhood[b]		3.1	2–12	0.6
Education level[c]		3.8	0–7	1.5
Family income-to-poverty ratio[b]		280.19%	0–3930.56%	344.30%
Employed[b] (yes)	15.4%			
(no)	84.6%			
White[b]	75.5%			
Black[b]	17.0%			
Hispanic[b]	4.1%			
Other ethnicity/race[b]	3.4%			
Female[b]	57.0%			
Male[b]	43.0%			
Age[b]		3.5	1–6	1.3
Married/cohabiting[b] (yes)	51.6%			
(no)	48.4%			
Number of persons in household[b]		2.0	1–9	1.0
Social cohesion[b]		6.7	3–9	2.1
Social network[b]		2.4	0–5	1.3
Family/peer support[b] (yes)	87.9%			
(no)	12.1%			
Peer/religious group support[b] (yes)	72.3%			
	27.7%			
Social media use[b] (yes)	31.3%			
(no)	68.7%			
Elderly health[b]		3.3	1–5	1.0
Number of chronic illnesses[b]		3.0	0–8	1.5
Severity of COVID-19 symptoms[a]		0.1	0–4	0.4
Other household members had COVID-19 symptoms[a] (yes)	1.4%			
(no)	98.6%			
Depression in Round-9 interview[b] (yes)	8.9%			
(no)	91.1%			
Anxiety in Round-9 interview[b] (yes)	7.6%			
(no)	92.4%			
Depression during COVID-19 outbreak[a]		2.0	1–4	0.8
Anxiety during COVID-19 outbreak[a]		2.1	1–4	0.8
Alcohol use during COVID-19 outbreak[a]		0.8	0–3	1.0
Smoking during COVID-19 outbreak[a]		0.3	0–3	0.7
Health insurance[b] (yes)	97.5%			
(no)	2.5%			

[a]Round-10

[b]Round-9

[c]Round-1

sd = standard deviation

Table 2 Multivariate analysis results of elderly's number of preventive behaviors (n = 2982)

Variables	b	LSE	90% CI
Rundown neighborhood	− .17*	.10	− .33 to − .01
Education level	− .02	.02	− .06 to .02
Family income-to-poverty ratio	.0002*	.0001	.00 to .00
Employed (no)	− .03	.11	− .21 to .14
Black (white)	.68**	.10	.51 to .85
Hispanic (white)	.89**	.17	.61 to 1.17
Other ethnicity/race (white)	.47**	.18	.17 to .77
Female (male)	.15*	.09	.01 to .29
Age	− .07*	.03	− .13 to − .01
Married/cohabiting (no)	− .14	.11	− .32 to .04
Number of persons in household	.78*	.04	.01 to .14
Social cohesion	.05**	.02	.02 to .08
Social network	.05*	.03	.01 to .10
Family/peer support (no)	.30*	.14	.06 to .54
Peer/religious group support (no)	.04	.09	− .11 to .20
Social media use (no)	.10	.09	− .04 to .25
Elderly health	.06	.05	− .02 to .14
Number of chronic illnesses	.02	.03	− .03 to .07
Severity of COVID-19 symptoms	.18**	.07	.06 to .30
Other household members had COVID-19 symptoms (no)	− .21	.57	− 1.14 to .73
Depression in Round-9 interview (no)	.25	.17	− .02 to .52
Anxiety in Round-9 interview (no)	− .23	.17	− .52 to .05
Depression during COVID-19 outbreak	.09	.06	− .01 to .19
Anxiety during COVID-19 outbreak	.40**	.07	.29 to .52
Alcohol use during COVID-19 outbreak	.03	.05	− .04 to .11
Smoking during COVID-19 outbreak	− .03	.06	− .13 to .06
Health insurance (no)	.26	.22	− .11 to .62
Constant	5.19**	.54	4.30 to 6.08
$F =$	8.55**		
$R^2 =$	.095		

*$p < .05$; ** $p < .01$; LSE = linearized standard error; CI = confidence interval; reference groups in parentheses

variable was positively associated with family income-to-poverty ratio ($b = 0.0002$; $p < 0.05$), Black ($b = 0.68$; $p < 0.01$), Hispanic ($b = 0.89$; $p < 0.01$), other ethnicity/race ($b = 0.47$; $p < 0.01$), female ($b = 0.15$; $p < 0.05$), number of persons in household ($b = 0.07$; $p < 0.05$), social cohesion ($b = 0.05$; $p < 0.01$), social network ($b = 0.05$; $p < 0.05$), family/peer support ($b = 0.30$; $p < 0.05$), severity of COVID-19 symptoms ($b = 0.18$; $p < 0.01$), and anxiety during COVID-19 outbreak ($b = 0.40$; $p < 0.01$). The rest of the explanatory variables had no significant associations with the outcome.

Discussion

On average, the older adults our sample comprised engaged in 7 out of 9 offered preventive behaviors. Close examination of the data revealed that the behaviors most frequently engaged in were washing hands or using hand sanitizer (95.3%) and wearing a face mask when outside one's home (93.5%). The preventive behavior practiced least by the sample was avoiding of contact with fellow household members (15.7%). These findings imply the great importance that maintaining close interaction with family members holds among older adults, however strongly committed they are to preventive behaviors.

Additionally, our hypotheses gained partial support from the findings of multivariate analysis. Consistent with speculation in one prior study (Jay et al., 2020), our multivariate results suggest that older adults living in relatively rundown neighborhoods adopt fewer preventive behaviors than older adults from less rundown locales do. A plausible explanation is that distress generated by the deprivation obvious in rundown neighborhoods discourages their residents from taking up preventive behaviors. To address this sort of pessimism, cities need to establish sites providing free testing and vaccination (Madhav et al., 2020), promote neighborliness, and improve physical environment. They might more tightly regulate evictions and utility shut-offs until the pandemic crisis eases (Jay et al., 2020). To protect the retired or low-income among older adults, they might advocate for continuing of aid such as "stimulus" payments and special unemployment insurance programs (Jay et al., 2020; Singu et al., 2020).

As for social structural factors, our results showed each group of older minority respondents (Black, Hispanic, "other") to engage more in preventive behaviors than older Whites respondents did. Close examination of the data revealed that preventive behaviors were associated positively ($b = 0.34$, $p < 0.05$) with an interaction term between rundown neighborhood and Black. Such findings suggest that, compared to older White adults, older adults of minority ethnicity have actively strived to limit the virus's spread.

In line with a prior study (Lu et al., 2021), the present study found that females adopted more preventive behaviors than males did. Furthermore, older the older adults became, fewer preventive behaviors they practiced. The present research also indicated that lower-income older adults performed fewer preventive behaviors. Consistent with results of a prior study on adults aged 50 years or older (Lu et al., 2021), our result showed no significant association between practice of preventive behaviors and education level.

Concerning our variables describing respondents' social relationships and social support, analyzing them showed that higher numbers of preventive behaviors were exhibited by older adults whose households were relatively large, who enjoyed relatively more social cohesion, larger social networks, and greater availability of family/peer support. The implication is that supports like these can both alleviate distress brought on by the pandemic and promote caring about others' health along with one's own, leading to adoption of preventive behaviors.

Among health variables we studied, severity of COVID-19 symptoms was the sole factor observed to have significant positive association with preventive behaviors

(even though only 2.7% of respondents reported having had any symptoms). This finding suggests that older adults practice preventive behaviors at relatively high levels when they themselves have had relatively severe COVID-19 symptoms. It is not their personal physical health or underlying illnesses in the year before the outbreak that appears to spark adoption of preventive behaviors, nor is it the potential of other household members to contract the infection. Thus it is key to continue educating the public—and especially Americans who have had no COVID-19 symptoms—about the virulence of the pathogen and the effectiveness of preventive measures.

Anxiety during COVID-19 outbreak was the only mental health variable having a significant positive association with preventive behaviors. Such finding implied that older adults would adhere to more preventive behaviors when they had heightened anxiety level, probably generated by severe COVID-19 symptoms. A close examination of data revealed that the interaction terms between anxiety during outbreak and Black ($b = -0.52$; $p < 0.01$) and between anxiety during outbreak and Hispanic ($b = -0.54$; $p < 0.01$) had significant negative associations with preventive behaviors. In other words, Black and Hispanic older adults who had higher anxiety during the outbreak would engage in fewer preventive behaviors. It therefore appears reasonable to serve the needs of lonely or anxious older adults by promoting safe types of interaction with families and peers, including mobile phone applications, online communication platforms, and videoconferencing applications.

Limitations

This study's sample included small numbers of respondents who reported being Hispanic or of "other" ethnicity. The small numbers prevented us from conducting separate multivariate analyses for specific ethnicities/races, impeding full understanding of racial disparities in the preventive behaviors under study. Another limitation is that the present study measured preventive behaviors in terms of total number of preventive behaviors adopted, which runs the risk of discounting how often, how consistently, one specific preventive behavior is employed. A third limitation results from the weak internal consistencies of several of the employed scales, namely rundown neighborhood, PHQ-2, and GAD-2. Generalization of results involving any of these scales should be undertaken cautiously.

Conclusion

Our application of the multiple disadvantage model using data from older adults in communities identified some protective and risk factors in their adoption of COVID-19—preventing behaviors. While our analysis showed that respondents of minority ethnicity/race mounted a vigorous defense against COVID-19 by adopting preventive behaviors, a strong need remains to resolve long-standing racial injustice and resulting disparities in health by facilitating minority Americans' access to medical and related resources (Hu et al., 2020; Singu et al., 2020). Government agencies

and advocacy groups that serve ethnic minority Americans should work together to develop and present COVID-related education programs. The programs should be tailored to the reality of racial disparities in health, stressing that the virus is often particularly severe in patients who are older and who are Black or Hispanic, especially those whose household income is low (Singu et al., 2020). They should also stress the efficacy of recommended preventive measures.

Compliance With Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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