Original Report:
COVID-19

Social Engagement and Mental Health Symptoms Across Asian American Ethnic Groups During the COVID-19 Pandemic

Jessica Y. Islam, PhD, MPH[1]; Iman Awan, BS[2];
Farzana Kapadia, PhD, MPH[3]

Background: To examine social engagement and mental health symptoms during the COVID-19 pandemic across Asian American (AA) ethnic groups.

Methods: Data from three waves of the nationally representative COVID-19 Household Impact Survey (4/20/2020-6/8/2020) were used to describe social engagement and mental health symptoms during the pandemic. Associations between mental health and social engagement were assessed via multinomial logistic regression.

Results: In this sample of 312 AAs (36.9% Chinese American, 30.9% South Asian American, 20.1% Filipino/Vietnamese American, and 12.0% Japanese/Korean American), daily communication with neighbors declined for Chinese, South Asian and Filipino/Vietnamese Americans but increased for Japanese/Korean Americans (P=.012) whereas communication with friends/family increased only for Filipino/Vietnamese, Japanese/Korean and South Asian Americans (P<0.001). Differences in self-reported symptoms of anxiety, depression, loneliness, and hopelessness were observed across AA ethnic groups. In adjusted models, lower social engagement was associated with frequent (3-4 days/week) depressive symptoms during the preceding week (cOR:3.26, 95%CI:1.01-10.5). This association was heightened for Asian men (cOR:14.22, 95%CI:3.62-55.8).

Conclusions: Heterogeneity of social engagement and mental health symptoms across AA ethnicities was observed. Understanding associations between social engagement and mental health within different communities is necessary to provide culturally and linguistically appropriate mental health treatment and care. *Ethn Dis*. 2022;32(2):131-144; doi:10.18865/ed.32.2.131

Introduction

To date, there are a limited number of studies examining social engagement and mental health burdens across Asian American (AA) ethnic groups in the United States.[1,2] The public health impact of this limited evidence base is more acute during the COVID-19 pandemic for multiple reasons.[3,4] First, prompted by quarantine recommendations, as well as social and physical distancing mandates, social engagement has been severely curtailed for all US residents.[5] Quarantine mandates, while a necessity, may act as a greater stressor within and across AA ethnic groups due to the heavy emphasis on familism and social collectivism rooted across Asian cultures.[6] Given the greater significance placed on maintaining social connections and interactions with family and friends across diverse Asian cultures,[6] disruptions to these relationships and interactions may lead to heightened social disengagement and, in turn, social isolation. For older AAs, recent AA immigrants, those with limited English proficiency, and undocumented individuals, social isolation and social disengagement can lead to disruptions in social networks and produce worse health outcomes, particularly with regard to mental health.[7–10]

Second, although prior research has evaluated the prevalence of mental health conditions, specifically depression, among AA adults,[11] few studies have compared conditions such as depression, anxiety, hopelessness and loneliness across heterogenous AA ethnic groups in the United States.[1] For example, one

Key Words: Depression; Anxiety; COVID-19; Pandemic; Disaggregated; Asian Americans

[1] Cancer Epidemiology Program, H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL
[2] Morsani College of Medicine, University of South Florida, Tampa, FL
[3] Grossman School of Global Public Health, New York University, New York City, NY

Address correspondence to Jessica Y. Islam, PhD, MPH, Cancer Epidemiology Program, H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL; Jessica.islam@moffitt.org

study reported that estimates of depression were similar among Korean Americans and Filipino Americans (33.3%-34.3%, respectively), and twice as high as the estimate of depression among Chinese Americans (15.7%),[11] but did not discuss other mental health burdens. This lack of research on the heterogeneity of mental health outcomes across AA ethnic groups fuels already existing cultural barriers in understanding the broad range and manifestations of mental health burdens. Additionally, there are differential levels of stigma associated with acknowledging and discussing adverse mental health due to cultural differences across these highly heterogenous Asian ethnicities.[12] One consequence of stigma around adverse mental health is a lower likelihood that AAs will access mental health services. In fact, a recent study by Cook and colleagues (2017) found that AAs access mental health treatment at less than half the rate of other racial/ethnic groups.[13]

The objective of this study is to evaluate social engagement with friends, family, and neighbors across distinct Asian American ethnic groups during the COVID-19 pandemic.

Third, an examination of the relationship between measures of social engagement and mental health are particularly necessary during this period of heightened anti-Asian sentiment.[3] The racialization of COVID-19 as the "China Virus" has fueled xenophobia, violence and hate crimes against AAs across the United States.[14,15] The fear of experiencing racialized hate crimes[16] and violence may drive many AAs, particularly those who are older, undocumented, or of limited English proficiency and therefore more vulnerable, to curtail engagement with individuals outside of their known family and friend networks.[17,18] As AAs across ethnic groups continue to experience racism, discrimination and violence during the COVID-19 pandemic, the need to recognize associated mental health burdens is vital and cannot be ignored.[19]

Thus, the objective of this study is to evaluate social engagement with friends, family, and neighbors across distinct AA ethnic groups during the COVID-19 pandemic. Next, we describe self-reported feelings of anxiety, depression, loneliness, and hopelessness across these AA ethnic groups during the same time period. Finally, we evaluate associations between social engagement and mental health symptoms among AAs. We hypothesized that mental health symptoms across disaggregated AA ethnic groups would differ significantly, and that low social engagement would be associated with increased reporting of worse mental health symptoms.

Methods

COVID-19 Impact Survey

Data for these analyses were obtained from the publicly available COVID-19 Household Impact Survey, conducted by National Opinion Research Center (NORC) at the University of Chicago. The COVID-19 Household Impact Survey provides national and regional statistics on physical health, mental health, economic security, and social dynamics of a nationally representative sample of the US population,[20] identified through the AmeriSpeak® study population. The survey is designed to provide weekly estimates of the US adult household population nationwide. Data from Week 1(April 20-26, 2020), Week 2 (May 4-10, 2020), and Week 3 (May 30-June 8, 2020) were merged for the present analysis.

AmeriSpeak® Study Population

Funded and operated by NORC at the University of Chicago, AmeriSpeak® is a probability-based panel designed to be representative of the US household population. During the initial recruitment phase of the AmeriSpeak® panel, randomly selected US households were sampled using area probability and address-based sampling, with a nonzero probability of selection from the NORC National Sample Frame. These sampled households were then contacted by US mail, telephone, and field interviewers. The panel provides sample coverage of approximately 97% of the US household population. Those excluded from the sample include people with only post office box addresses, addresses not listed

in the USPS Delivery Sequence File, and newly constructed dwellings. AmeriSpeak® panelists participate in studies conducted by NORC on behalf of governmental agencies, academic researchers, and media and commercial organizations. Interviews were conducted in English and Spanish. In households with more than one adult panel member, only one household member was selected at random for the sample. Invited panel members were given the option to complete the survey online or by telephone with an NORC telephone interviewer. The number of participants invited, and the percentage of interviews completed by week are as follows: 11,133 invited with 19.7% interviews completed during Week 1; 8,570 invited with 26.1% interviews completed (Week 2); and 10,373 invited with 19.7% interviews completed (Week 3). Panelists were offered a $5 monetary incentive for completing the survey. The analytic sample includes 10,760 adults nationwide. The final analytic sample was weighted to reflect the US population of adults aged ≥18 years. The demographic weighting variables were obtained from the 2020 Current Population Survey.

Asian American Study Population

The COVID-19 Household Impact Survey provides ethnicity-based categories for participants who self-identify as non-Hispanic, Asian disaggregated into the following Asian ethnic groups: Chinese, South Asian, Filipino or Vietnamese, and Japanese or Korean. Combined Asian categories were created by the COVID-19 Impact Survey data managers. We were unable to separate these categories for our research purposes. Results are presented for the total study sample (all race/ethnicities), the aggregated non-Hispanic AA sample, and by disaggregated AA ethnic groups identified above. Race/ethnicity was suppressed for 1.5% of the study sample due to the potential for disclosure risk; these observations were dropped from the present analysis.

Primary Exposure: Social Engagement Measures

Social engagement was measured using a series of questions assessing frequency of communication with neighbors, and family and friends. Two separate questions were asked for each type of communication (*"…how often did you communicate with your friends and family by phone, text, email, app, or using the Internet?"* and *"…how often did you talk to any of your neighbors?*"). Each of these questions was asked with two different time frames – one referring to the "*past month*" and one referring to "*…a typical month prior to March 1, 2020, when COVID-19 began spreading in the United States…"* Individuals who selected "once a month" or "not at all" were defined as having limited social engagement.

Primary Outcome: Mental Health Measures

Participants were asked to self-report (in the last 7 days) feeling "*nervous, anxious, on edge*", feeling "*depressed*", feeling "*lonely*", feeling "*hopeless about the future*", and having "*physical reactions such as sweating, trouble breathing, nausea or a pounding heart when thinking about your experience with the coronavirus pandemic.*" Responses for each item were: Not at all or less than 1 day; 1-2 days; 3-4 days; 5-7 days.

Covariates

Covariates in the present analysis include: age (18-44 and ≥45); sex (male/female); marital status (married/living with a partner, widowed/divorced/separated, never married); educational attainment (no HS diploma, HS graduate or equivalent, some college, baccalaureate degree or above); employment status (employed/unemployed); household income (<$50,000, $50,000-<$100,000, ≥$100,000); population density (rural, suburban, urban); census region (Northeast, Midwest, South, West); insurance status (insured/uninsured); chronic conditions (yes/no); and physical health symptoms reported in the last 7 days (yes/no) (data not shown).

Data Analysis

Descriptive statistics for all measures considered in this analysis are presented for the overall sample and disaggregated by AA ethnic groups, in percentages among all respondents and include a margin of error of +/- 3·0 percentage points at the 95%CI level. Comparisons of disaggregated AA ethnic groups to the general population and the overall AA group are provided in tables and figures to show how sociodemographic characteristics as well as social determinants of mental health differ across AA ethnic groups and may be otherwise missed when data are not disaggregated by AA ethnic group.

Chi-square tests were used to compare social engagement and mental health symptoms across AA ethnic groups as well as to the general US adult population. Multinomial logistic regression models were used to calculate cOR and 95%CI to evaluate the associations of limited social engagement (primary independent variable) with any mental health symptom (primary dependent variable) reported in the last 7 days among all adults as well as among all Asian adults. We present these analyses using two approaches: first, adjusted for age, sex, annual household income (≤$50,000 and >$50,000), employment status, and marital status (married/living with a partner or not); and second, stratified by sex after adjustment for the remaining covariates. We were unable to present these results disaggregated by AA ethnic group due to limited sample size required for multivariable analyses. Based on the exploratory nature of this analysis, we did not include an adjustment for multiple comparisons.[21] All statistical analyses were conducted using Stata IC 15 (StataCorp LLC, College Station, TX). Sampling weights were applied to provide results that were nationally representative of the US adult population.

Results

As shown in Table 1, AA respondents were more likely to be male (66.4%) and these proportions differed by AA ethnic group with Chinese and South Asian respondents (75.3% and 70.8%, respectively) more likely to be male compared to their Filipino/Vietnamese (62.4%), and Japanese/Korean American (51.3%) counterparts. By age group, 68.3% of AA respondents were 18-44 years old. The greater proportion of younger respondents among AAs was driven predominantly by South Asians (85.8%) and Filipino/Vietnamese (73.5%) respondents who were more likely to be aged < 44 years compared to their Chinese (48.6%) and Japanese/Korean (43.1%) peers. For educational attainment, 66.4% of all AAs reported at least a bachelor's degree; across AA ethnic group 66%-75.4% respondents reported at least a college degree. By marital status, Japanese/Korean American (81.9%) respondents were more likely to report being married/cohabitating compared to South Asian (56.6%), Chinese (58.4%) and Filipino/Vietnamese (59.6%) American respondents. Most AA respondents reported residing in urban settings (93.3%-99%). Chinese (45.7%), Filipino/Vietnamese (70.3%) and Japanese Americans (68.4%) were more likely to reside in the West coast compared with South Asian Americans who were more likely to live in the South (47% or Northeast (32.1%). In terms of employment, 63.9% of AAs reported being employed. And again, there was substantial variation in employment with South Asians (78.7%) and Japanese/Korean Americans (60%) more likely to report being employed than Filipino/Vietnamese (57.8%) and Chinese Americans (47.6%). In terms of annual household income, 25.2% of AA respondents reported incomes of <$50,000. But within AA groups, 36% of Filipino/Vietnamese and 33.8% of Japanese/Korean Americans reported incomes of <$50,000 compared to 27.2% of Chinese and 6.3% of South Asian Americans. Although 75.9% of all AA respondents reported employer sponsored insurance coverage, this ranged from 82.8% for South Asian to 60% for Filipino/Vietnamese Americans. Finally, while differences in chronic conditions across AA ethnic groups were pronounced, Filipino/Vietnamese American respondents were consistently more likely to report the highest burden of each chronic condition assessed here compared to all other AA ethnic groups, with the exception of overweight/obesity where 32% of South Asians vs 27.7% Filipino/Vietnamese reported this condition.

In terms of social engagement with neighbors, there were significant differences across AA ethnic groups as well as changes in engagement between the pre-COVID-19 and COVID-19 pandemic periods (Table 2). Prior to the pandemic, Chinese (6.1%) and Filipino/Vietnamese Americans (8.2%) were less likely to report daily communication with neighbors compared to their South Asian (10.4%) and Japanese/Korean (13.2%) American counterparts (P=.017). During the pandemic, frequency of daily communication with neighbors declined for Chinese (3.2%), South Asian (4.7%) and Filipino/Vietnamese (0) Americans but increased for Japanese/Korean Americans (20.7%) (P=.012). Daily communication with friends and family during the pre-pandemic period was highest among Filipino/

Table 1. Sociodemographic characteristics among the study population overall by Asian American ethnic group, COVID-19 Household Impact Survey Respondents, April - June 2020

	Total Asian, n=312		Chinese, n=84		South Asian, n=77		Filipino/Vietnamese, n=57		Japanese/Korean, n=43	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Sex (Male)	66.4	59.1,72.9	75.3	62.7,84.7	70.8	55.1,82.7	62.4	46.0,76.3	51.3	34.9,67.5
Age groups										
18-44	68.3	61.2,74.6	48.6	35.7,61.6	85.8	73.4,93.0	73.5	58.3,84.6	43.1	27.5,60.1
45+	31.7	25.4,38.8	51.4	38.4,64.3	14.2	7.0,26.6	26.5	15.4,41.7	56.9	39.9,72.5
Education										
No HS diploma	2.5	1.1,5.5	0		0		9.6	3.6,23.3	0	
HS/GED	18.7	12.3,27.4	11.5	4.4,26.9	24	12.1,42.0	10.9	4.0,26.9	0	
Some college	12.5	8.8,17.3	13.1	7.0,23.3	5.3	1.6,16.5	13.4	6.0,27.1	28	15.5,45.2
BA or above	66.4	58.4,73.5	75.4	61.5,85.4	70.7	53.5,83.4	66	49.8,79.3	72	54.8,84.5
Marital status										
Married/co-habituating	56.6	49.0,63.9	58.4	45.0,70.6	56.6	41.6,70.4	59.6	42.8,74.5	81.9	68.0,90.6
Wid/div/sep	5.2	3.1,8.6	2	.6,6.2	3.8	1.0,13.4	0		6.3	1.6,21.0
Never married	38.2	31.0,46.0	39.7	27.6,53.2	39.5	26.0,54.9	40.4	25.5,57.2	11.8	5.8,22.8
Population density										
Rural	.6	.1,2.4	0		0		0		6	1.5,21.1
Suburban	3.7	1.6,8.4	6.7	1.7,22.7	1	.3,3.3	2.9	.4,17.9	.2	0,1.6
Urban	95.7	91.1,97.9	93.3	77.3,98.3	99	96.7,99.7	97.1	82.1,99.6	93.7	79.0,98.4
Census region										
Northeast	18.4	13.5,24.7	21.9	12.6,35.3	32.1	20.3,46.7	0		21.7	10.6,39.4
Midwest	8.2	5.1,13.0	11.2	4.5,25.2	5.7	2.7,11.5	12.6	5.0,28.2	3.7	1.5,9.0
South	29.3	22.9,36.8	21.2	12.4,33.9	47	32.8,61.8	17.0	9.2,29.4	6.2	2.1,17.0
West	44	36.8,51.4	45.7	33.1,58.9	15.2	8.7,25.3	70.3	55.0,82.2	68.4	51.5,81.5
Employed (yes)	63.9	56.5,70.7	47.6	34.9,60.5	78.7	63.4,88.8	57.8	42.1,72.0	60	43.1,74.9
Annual household income										
<$50,000	25.2	19.0,32.7	27.2	17.1,40.5	6.3	2.0,17.9	36	21.5,53.6	33.8	19.9,51.4
$50,000- <$100,000	36	29.4,43.2	26.9	16.2,41.4	30	19.0,44.0	45.3	30.3,61.2	39.8	25.2,56.4
$100,000 and above	38.8	31.9,46.1	45.8	33.2,59.0	63.7	49.4,76.0	18.7	9.7,33.0	26.4	13.8,44.6
Insurance type										
Self-purchased	22.8	16.9,29.9	35.8	23.8,49.9	10.9	5.0,22.0	29.2	15.6,48.0	13.5	5.5,29.4
Through employer	75.9	69.6,81.3	69.9	56.8,80.5	82.8	68.6,91.4	60	44.2,74.0	78.3	61.4,89.1
Medicaid	12.9	9.0,18.2	14.1	7.2,25.9	10.5	4.2,24.1	21.7	11.5,37.2	16.9	8.0,32.2
Medicare	6.7	4.2,10.4	4.4	1.8,10.6	6.7	2.4,17.1	9.7	4.4,19.9	7.3	2.9,17.4
Uninsured	2.2	1.1,4.3	3.8	1.3,10.1	0		2.0	.5,7.8	0	

HS/GED, high school/graduate equivalent; Wid/Div/Sep, widowed, divorced, separated

Vietnamese (64.2%) and Japanese/Korean (62.8%) and lowest among Chinese Americans (34%) (P=.001). During the pandemic, daily communication with friends and family increased for Filipino/Vietnamese (80.4%), Japanese/Korean (67.7%) and South Asian (70.1%) but remained almost the same for Chinese Americans (34.8%) (P<.001).

As shown in Figures 1-4, reports of anxiety, depression, loneliness, and hopelessness during the 7 days preceding each interview differed across AA ethnic group. Experiences of nervousness/anxiety 1-2 days/week were more likely to be reported by South Asians (33.8%) whereas over 3-4 days/week for Chinese respondents (11.1%) and 5-7 days/week for Filipino/Vietnamese American respondents (6.7%) (P<.001). South Asian Americans were most likely to report experiencing depressive

Table 2. Social engagement indicators among the study population overall and disaggregated by Asian ethnic groups, COVID-19 Household Impact Survey, April-June 2020

	Total Asian, n=312		Chinese, n=84		South Asian, n=77		Filipino/Vietnamese, n=57		Japanese/ Korean, n=43		
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	P[a]
Frequency of talking to neighbors during a typical month prior to 3/1/2020											.017
Daily	8.3	5.1,13.1	6.1	2.5,14.2	10.4	4.1,24.2	8.2	2.1,27.2	13.2	5.1,30.0	
Weekly	24.4	18.7,31.1	27.7	17.7,40.5	32.4	19.5,48.6	12.9	6.4,24.6	29.1	15.9,47.1	
Monthly	34.5	27.5,42.4	39.4	26.6,53.8	24.0	13.8,38.4	29.5	17.8,44.7	20.6	10.8,35.8	
1x/month	16.8	12.2,22.6	5.1	2.0,12.6	23.8	14.1,37.3	24.5	12.3,42.9	25.4	13.8,41.9	
Not at all	14.7	10.8,19.8	21.7	13.6,32.9	9.4	4.5,18.4	19.6	9.5,36.1	11.8	3.9,30.5	
Frequency of talking to neighbors, past month											.012
Daily	5.3	3.0,9.0	3.2	1.0,9.5	4.7	1.2,17.0	0		20.7	9.7,38.6	
Weekly	29.3	22.6,37.0	24.8	14.9,38.3	30.4	18.3,45.9	24.5	13.7,40.0	13.9	6.1,28.6	
Monthly	34.5	27.8,41.9	40.8	28.3,54.7	27.6	15.9,43.5	33.6	20.5,49.9	44.1	28.4,61.1	
1x/month	17.8	12.9,24.1	17.1	8.9,30.1	24.9	14.7,38.9	25.2	12.9,43.4	3.7	1.2,11.5	
Not at all	11.6	8.4,15.7	14.1	8.4,22.8	12.5	6.9,21.7	11.3	4.4,25.9	17.6	7.8,35.0	
Communication with friends and family during a typical month prior to 3/1/2020											.001
Daily	55.2	47.8,62.2	34	23.0,46.9	56.4	42.0,69.8	64.2	48.7,77.2	62.8	45.2,77.5	
Weekly	27.5	21.9,34.0	32.8	21.7,46.2	29.6	18.9,43.1	26.5	15.7,41.1	28.2	15.2,46.3	
Monthly	13.9	9.3,20.2	28.6	17.3,43.5	10.9	4.4,24.2	4	1.3,11.7	5.7	1.3,21.6	
1x/month	2.1	1.0,4.3	4.6	1.7,11.9	1.8	.6,4.9	0		1.8	.2,12.0	
Not at all	.5	.2,1.4	0		1.3	.3,5.3	0		1.5	.4,6.1	
Communication with friends and family, past month											<.001
Daily	63.5	56.4,70.1	34.8	23.8,47.7	70.1	56.6,80.9	80.4	67.1,89.2	67.7	50.5,81.2	
Weekly	26.4	20.6,33.1	45.7	32.8,59.2	27.5	17.2,41.1	10.2	5.2,19.2	27.1	14.6,44.6	
Monthly	6	3.4,10.4	12.7	5.8,25.6	0		4.1	1.0,15.8	3.7	.9,13.9	
1x/month	2.4	.9,6.0	6.8	2.4,17.7	0		0		0		
Not at all	.7	.3,1.7	0		2.3	.8,6.3	0		1.5	.4,6.1	

a. P is based on the chi-square or exact test used to compare the social engagement measures across Asian American ethnic categories

symptoms during the past week (1-2 days/week: 39.2%, 3-4 days/week: 9.8% and 5-7 days/week 3.7%, respectively). Additionally, Chinese and Filipino/Vietnamese American respondents were more likely to report depressive symptoms during the past week at the highest frequency, including 3-4 and 5-7 days/week (P=.009). In terms of loneliness, South Asian (14.7%) and Chinese American respondents (8.4%) were more likely to report feelings of loneliness during the past week, 3-4 and 5-7 days/week, respectively (P=.046). Finally, feelings of hopelessness during the past 1-2 days/week were more likely to be reported by Filipino/Vietnamese American respondents (28.8%), during the past 3-4 days/week by Chinese American respondents (9.6%) and during the past 5-7 days/week by South Asian American respondents (19.5%).

Table 3 presents the results of our multivariable analyses to evaluate the associations of limited social engagement with mental health symptoms for the study population overall and among AA adults specifically. In multivariable multinomial logistic regression analyses, adjusting for age, sex, marital status, income, and employment, respondents who reported low levels of social engagement were more likely to report experiencing 3-7 days of nervousness/anxiety (cOR=1.38, 95% CI:1.17-1.64), depressive symptoms (cOR=1.41, 95% CI:1.19-1.67), loneliness (cOR=1.37, 95% CI:1.16-1.61), and hopelessness (cOR=1.44, 95% CI:1.21-1.71) (Table 3). Similar associations were observed for male survey respondents, with males vs females more likely to report experiencing 3-7 days of nervousness/anxiety (cOR=1.67, 95% CI:1.30-2.14),

depressive symptoms (cOR=1.95, 95% CI:1.50-2.52), loneliness (cOR=1.64, 95% CI:1.28-2.10), and hopelessness (cOR=1.73, 95% CI:1.33-2.24). Among all AA respondents, individuals who reported low levels of social engagement were more likely to report feeling depressive symptoms during the preceding 3-7 days (cOR=3.26, 95% CI 1.01-10.5). Moreover, this association was heightened for Asian men (cOR=14.22, 95% CI 3.62-55.8). Due to sample size limitations, we were unable to examine associations between limited social engagement and mental health symptoms for distinct AA ethnic groups.

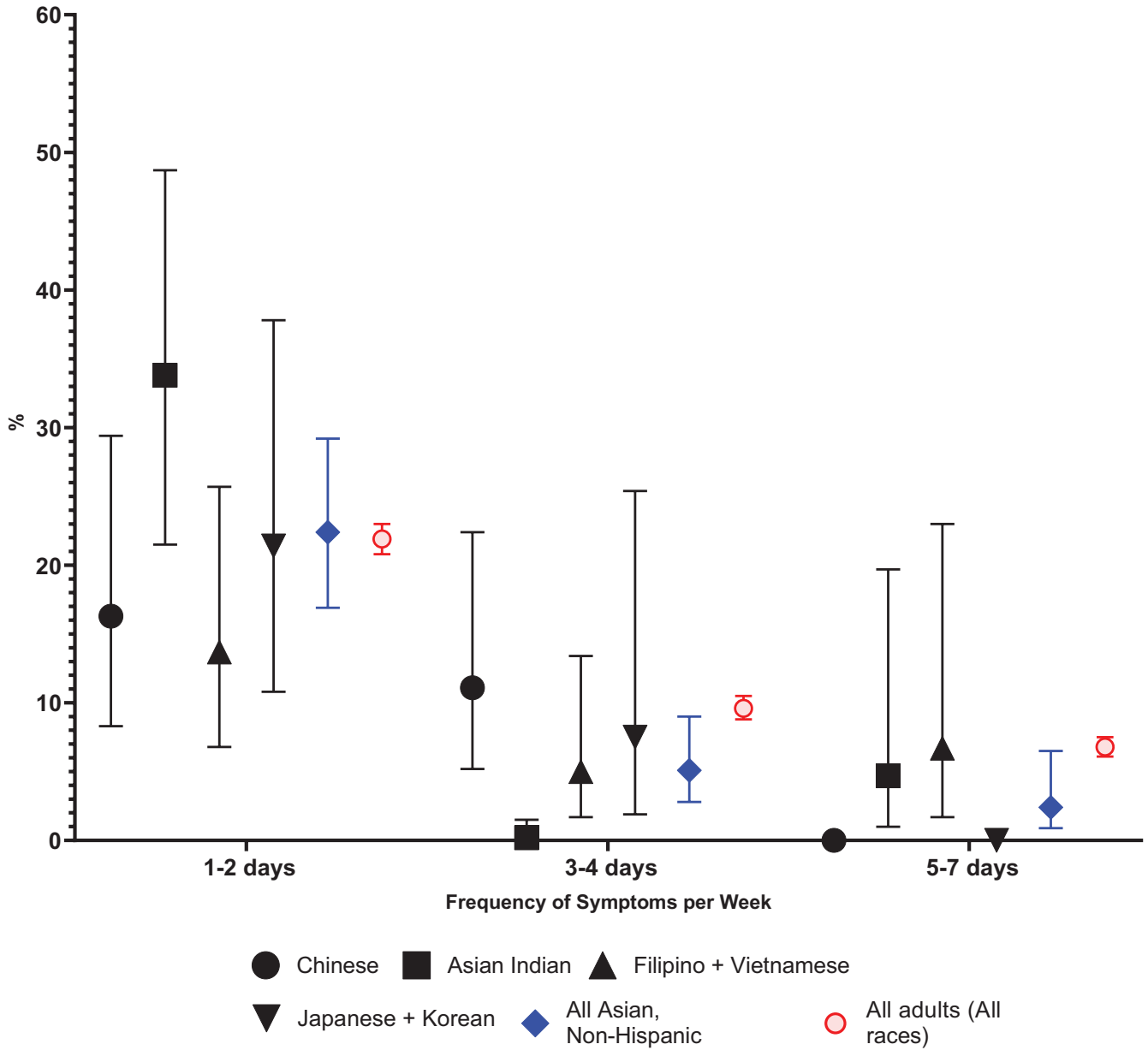

Figure 1. Mental health symptoms among the study population overall and disaggregated by Asian ethnic groups, COVID-19 Household Impact Survey, April-June 2020 - - Felt nervous, anxious, or on edge

Discussion

These findings indicate that during the height of the COVID-19 pandemic, AAs, overall, and by disaggregated ethnic categories experienced differential disruptions in social interactions with family, friends, and neighbors. Specifically, South Asian, Chinese and Filipino/ Vietnamese American respondents reported declines in social interactions with neighbors but Japanese and Korean American respondents reported increased interactions with neighbors. While quarantine and social distancing mandates may account for some of these disruptions,

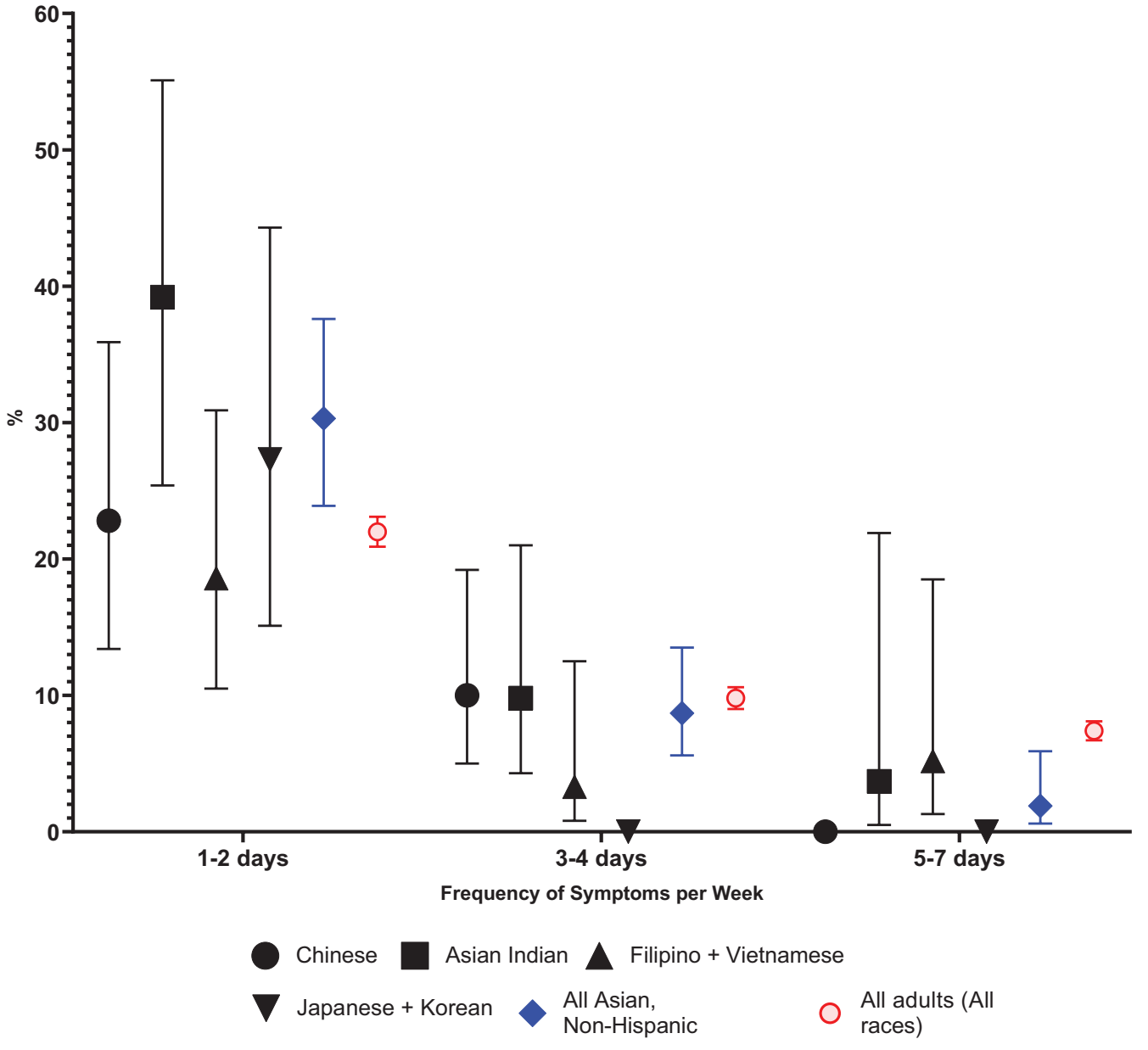

Figure 2. Mental health symptoms among the study population overall and disaggregated by Asian ethnic groups, COVID-19 Household Impact Survey, April-June 2020 - - Felt depressed

we cannot discount the likelihood that some degree of disruptions may be attributed to fears of negative interactions and discrimination due to the anti-Asian rhetoric surrounding COVID-19. And while these declines in social engagement are measurable for participants who were able to respond to this survey, administered only in English and Spanish, we lack much needed data on these trends for individuals with limited English proficiency and for Asian Americans who are recent immigrants. We are unable to account for immigration status or nativity due to data limitations. Further, collection of information on language

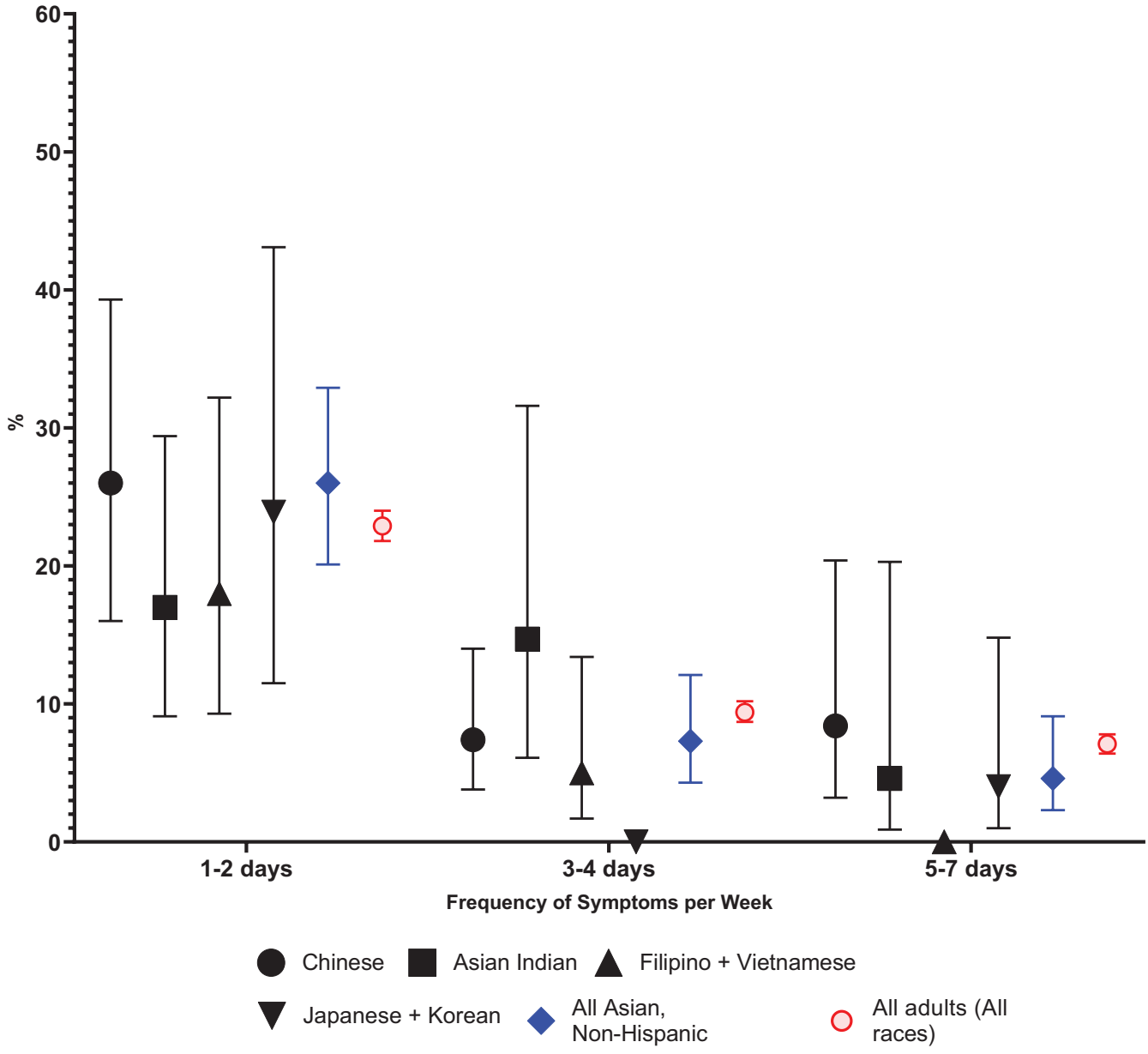

Figure 3. Mental health symptoms among the study population overall and disaggregated by Asian ethnic groups, COVID-19 Household Impact Survey, April-June 2020 - - Felt lonely

proficiency and years since immigration along with neighborhood level sociodemographics and composition would also provide insight into drivers of these disruptions in social interactions. Especially at this critical time, when anti-Asian sentiment is heightened, efforts to provide surveys in at least the major languages spoken by the disaggregated ethnic groups identified in this survey is required.

Our findings show differences in levels of nervousness/anxiety, depression, hopelessness, and loneliness experienced across AA ethnic groups. Shedding light of the range of mental health burdens experienced across AA ethnic groups is critically war-

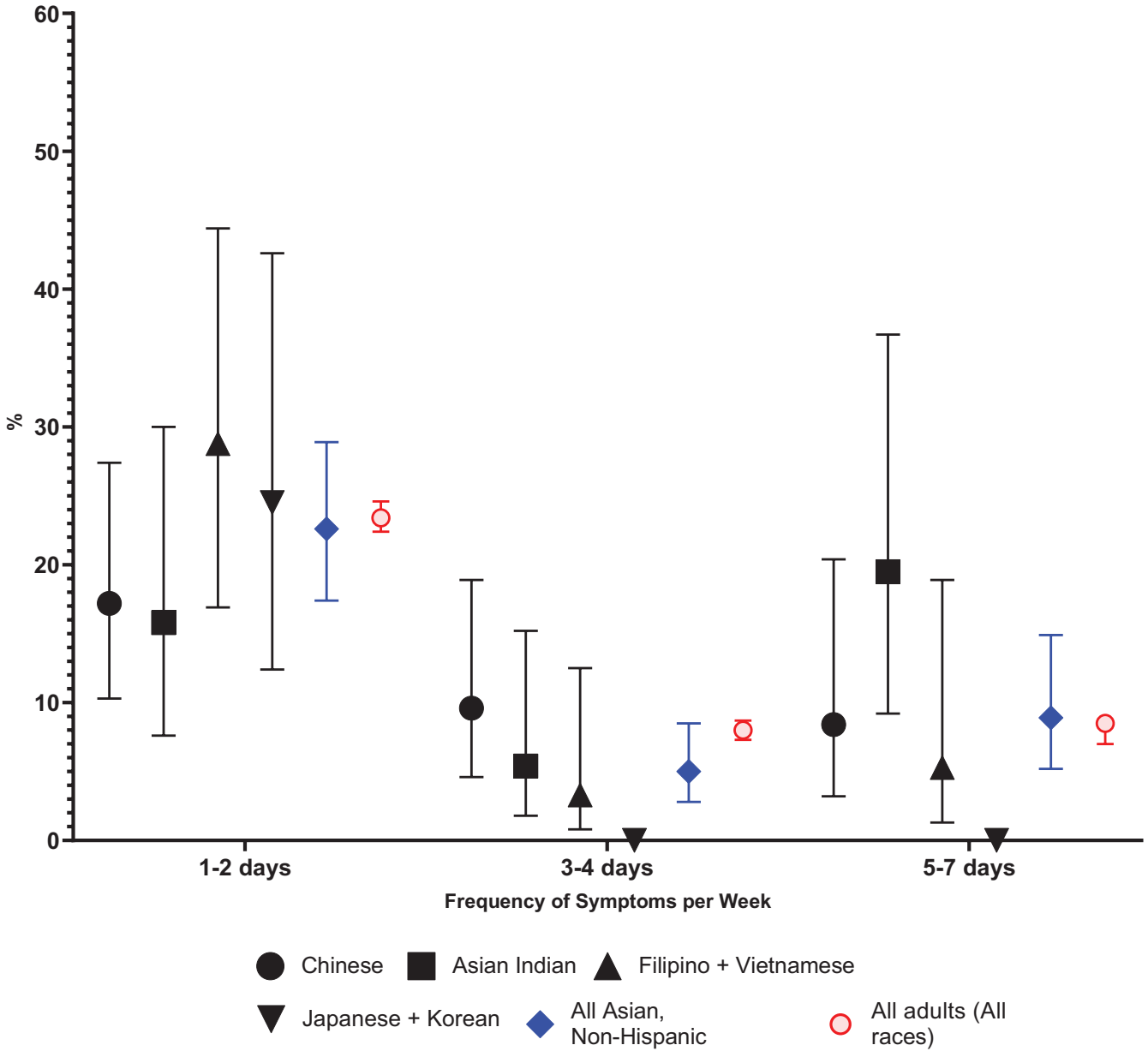

Figure 4. Mental health symptoms among the study population overall and disaggregated by Asian ethnic groups, COVID-19 Household Impact Survey, April-June 2020 - - Felt hopeless about the future

Table 3. Multinomial associations of limited social engagement (main exposure) with self-reported mental health symptoms (main outcome) among Asian adults and the adult general population, COVID-19 Household Impact Survey, April-June 2020

	Felt nervous, anxious, on edge		Felt depressed		Felt lonely		Felt hopeless about the future			
	3-7 days		3-7 days		3-7 days		1-2 days		3-7 days	
	cOR	95%CI	cOR	95%CI	cOR	95%CI	cOR	95%CI	cOR	95% CI
	Limited Social Engagement									
Total										
All, n=10,760[a]	1.38	1.17-1.64	1.41	1.19-1.67	1.37	1.16-1.61	1.14	.98-1.31	1.44	1.21-1.71
Men, n= 5272	1.67	1.30-2.14	1.95	1.50-2.52	1.64	1.28-2.10	1.08	.86-1.35	1.73	1.33-2.24
Women, n=5488	1.18	.94-1.47	1.10	.89-1.38	1.19	.95-1.48	1.20	.99-1.45	1.23	.99-1.55
Asian										
All, n=312 [a]	1.89	.75-4.76	3.26	1.01-10.5	1.07	.36-3.19	.74	.34-1.59	1.33	.41-4.33
Men, n=207	2.36	.80-6.97	14.2	3.62-55.8	1.28	.34-4.79	.65	.26-1.63	1.27	.31-5.14
Women, n=105	1.45	.34-6.25	.60	.12-3.09	1.10	.26-4.68	.71	.15-3.41	1.69	.33-8.74

a. Multinomial logistic regression models adjusted for: Age, sex, marital status, income, employment and compared to those who reported no mental health symptoms
Sex-stratified models exclude sex from the adjustment set.

ranted as these conditions are often ignored or devalued as serious mental health outcomes yet are associated with negative physical and mental health states.[22] The majority of prior studies on mental health among AAs have focused on depression and noted that differences in depressive symptomology across AA ethnic groups were attributed to different cultural and familial expectations.[11] The COVID-19 pandemic may exacerbate these differences with the addition of economic (ie, loss of employment)[23] and social pressures. Finally, depression and anxiety are highly correlated, and there are multiple modes of evidence-based treatment and therapy available to manage both. Identifying the extent to which depression and anxiety exist within and across AA ethnic groups is a requisite to being able to offer culturally and linguistically tailored mental health prevention, counseling, and treatment services. Given that we were unable to leverage validated scales to measure mental health outcomes due to the use of existing secondary data, future research should prioritize validated measurement of outcomes such as depression (PHQ-9) and anxiety (GAD-7).

Prior findings examining the relationship between social support and depressive symptomology among male AAs have reported that increased familial and friend strain was associated with higher odds of generalized anxiety but not depressive disorders among AA men.[24] In addition, a study by Chae and colleagues[25] found that family strain and discrimination were associated with increased odds of depression but that family support buffered the impact of discrimination on depression among AA adults. The findings presented in our report suggest that decreases in overall social interactions were associated with heightened depressive symptoms among male AAs. One explanation for these findings may be that increased social and familial isolation and the lack of positive familial support may contribute to heightened depressive symptoms. Clearly, additional information on experiences of discrimination as well as more detailed information on types of social interactions during this period are required to delineate causes of increased mental health symptoms, particularly among AA men.

Study Limitations

A notable strength of our analysis is the use of a nationally representative survey data and therefore, access to a representative sample of AAs in the United States. Despite

this, our study was largely underpowered and unable to provide statistically significant associations between social engagement and mental health symptoms by disaggregated AA ethnic groups or evaluate sex-specific differences in social engagement and mental health. Between 2000 – 2015, the Asian population in the United States grew by 72% - the largest growth rate for any racial or ethnic group in the United States.[26] Despite this growth, national surveys of the US population continue to under-sample AAs and neglect ascertainment of ethnic origin.[27] This forces investigators to either exclude AAs from investigations of health disparities or to combine distinct Asian origin groups into one monolithic ethnic group despite the substantial diversity across Asian ethnic groups. Even in the present survey, the Asian American ethnic group is not reflective of the size of the Asian US population and may have been undersampled. The grouping of Filipino and Vietnamese persons and Japanese and Korean persons is not based on ethnic, cultural or linguistic similarity. This lack of data equity and gross data aggregation will continue to make invisible the social, mental and physical health inequities experienced within and across diverse AA ethnic groups.[28–30] In addition, the lack of disaggregated data fuel the persistence of the inaccurate and incorrect 'model minority' myth[31] postulating that AAs tend to have better health outcomes than other racial/ethnic groups. This myth continues to undermine efforts to understand the impact of widening socioeconomic disparities on health status within and across disaggregated AA ethnic groups in the United States.

These findings indicate that during the height of the COVID-19 pandemic, Asian Americans … experienced differential disruptions in social interactions with family, friends, and neighbors.

Importantly, information on respondent's mental health symptoms prior to the onset of the COVID-19 pandemic were unavailable. The lack of these data precludes the ability to examine whether there were changes in mental health symptoms before compared to during the pandemic. We were unable to account for factors such as perceived discrimination, living conditions, or major life events, which may be associated with poor mental health due to data limitations. Finally, limited information on experiences of anti-Asian racism, discrimination, violence and victimization, all of which are associated with anxiety, depression and hopelessness, undermine our ability to understand how these factors act as drivers of mental health burdens aside from the decreases in social and familial engagement during the COVID-19 pandemic.

Conclusion: Public Health Implications

The growth of the AA population is marked by the growth of a heterogeneous population consisting of individuals from 20 countries and more than 50 ethnic groups who speak twice as many languages. The need for disaggregated and granular data on Asian ethnic origin is a priority for understanding health disparities within the AA population. As such, appropriate inclusion of AAs ethnic groups by applying appropriate sampling methodologies is required in national surveys to understand the burden and drivers of mental health disparities across Asian ethnic groups.

By providing information to community-based organizations working in diverse Asian American communities on the extent to which mental health burdens exist among community members can also be a first step in helping to building media and public health campaigns on mental health awareness. With the support of trusted community-based organizations, efforts to provide linguistically and culturally appropriate messaging would play a major role in helping to reduce stigma associated with adverse mental health as well as to encourage seeking and accessing mental health treatment and care.

Acknowledgements

The authors gratefully acknowledge the NORC Foundation for publicly releasing the COVID-19 Household Impact Survey database for research purposes.

Conflict of Interest

No conflicts of interest to report.

Author Contributions

Research concept and design: Islam; Data analysis and interpretation: Islam, Awan, Kapadia; Manuscript draft: Islam, Awan, Kapadia; Statistical expertise: Islam, Kapadia; Administrative: Islam, Awan; Supervision: Islam

References

1. Sue S, Yan Cheng JK, Saad CS, Chu JP. Asian American mental health: a call to action. *Am Psychol*. 2012;67(7):532-544. https://doi.org/10.1037/a0028900 PMID:23046304
2. Kim G, Wang SY, Park S, Yun SW. Mental health of asian american older adults: contemporary issues and future directions. *Innov Aging*. 2020;4(5):igaa037. https://doi.org/10.1093/geroni/igaa037 PMID:33274302
3. Wang D, Gee GC, Bahiru E, Yang EH, Hsu JJ. Asian-Americans and Pacific Islanders in COVID-19: Emerging Disparities Amid Discrimination. *J Gen Intern Med*. 2020;35(12):3685-3688. https://doi.org/10.1007/s11606-020-06264-5 PMID:33009656
4. Saltzman LY, Hansel TC, Bordnick PS. Loneliness, isolation, and social support factors in post-COVID-19 mental health. *Psychol Trauma*. 2020;12(S1):S55-S57. https://doi.org/10.1037/tra0000703 PMID:32551762
5. Galea S, Merchant RM, Lurie N. The Mental Health Consequences of COVID-19 and Physical Distancing: The Need for Prevention and Early Intervention. *JAMA Intern Med*. 2020;180(6):817-818. https://doi.org/10.1001/jamainternmed.2020.1562 PMID:32275292
6. Pew Research Center. The Rise of Asian Americans; April 04, 2013. Last accessed February 1, 2022 from https://www.pewresearch.org/social-trends/2012/06/19/the-rise-of-asian-americans/.
7. Prince M, Patel V, Saxena S, et al. No health without mental health. *Lancet*. 2007;370(9590):859-877. https://doi.org/10.1016/S0140-6736(07)61238-0 PMID:17804063
8. Martino J, Pegg J, Frates EP. The connection prescription: using the power of social interactions and the deep desire for connectedness to empower health and wellness. *Am J Lifestyle Med*. 2015;11(6):466-475. https://doi.org/10.1177/1559827615608788 PMID:30202372
9. Sørensen T, Kleiner R, Ngo P, Sørensen A, Bøe N. From sociocultural disintegration to community connectedness dimensions of local community concepts and their effects on psychological health of its residents. *Psychiatry J*. 2013;2013:872146. https://doi.org/10.1155/2013/872146 PMID:24236288
10. Umberson D, Montez JK. Social relationships and health: a flashpoint for health policy. *J Health Soc Behav*. 2010;51(1_suppl)(suppl):S54-S66. https://doi.org/10.1177/0022146510383501 PMID:20943583
11. Kim HJ, Park E, Storr CL, Tran K, Juon H-S. Depression among Asian-American Adults in the Community: Systematic Review and Meta-Analysis. *PLoS One*. 2015;10(6):e0127760. https://doi.org/10.1371/journal.pone.0127760 PMID:26029911
12. Misra S, Jackson VW, Chong J, et al. Systematic review of cultural aspects of stigma and mental illness among racial and ethnic minority groups in the United States: implications for interventions. *Am J Community Psychol*. 2021;68(3-4):486-512. https://doi.org/10.1002/ajcp.12516 PMID:33811676
13. Cook BL, Trinh N-H, Li Z, Hou SS-Y, Progovac AM. Trends in racial-ethnic disparities in access to mental health care, 2004-2012. *Psychiatr Serv*. 2017;68(1):9-16. https://doi.org/10.1176/appi.ps.201500453 PMID:27476805
14. Cheah CSL, Wang C, Ren H, Zong X, Cho HS, Xue X. COVID-19 Racism and mental health in Chinese American families. *Pediatrics*. 2020;146(5):e2020021816. https://doi.org/10.1542/peds.2020-021816 PMID:32873719
15. Le TK, Cha L, Han H-R, Tseng W. Anti-Asian xenophobia and Asian American COVID-19 disparities. *Am J Public Health*. 2020;110(9):1371-1373. https://doi.org/10.2105/AJPH.2020.305846 PMID:32783714
16. Chen JA, Zhang E, Liu CH. Potential impact of COVID-19-related racial discrimination on the health of Asian Americans. *Am J Public Health*. 2020;110(11):1624-1627. https://doi.org/10.2105/AJPH.2020.305858 PMID:32941063
17. McMurtry CL, Findling MG, Casey LS, et al. Discrimination in the United States: experiences of Asian Americans. *Health Serv Res*. 2019;54(S2)(suppl 2):1419-1430. https://doi.org/10.1111/1475-6773.13225 PMID:31657465
18. Viladrich A. Sinophobic Stigma Going Viral: Addressing the Social Impact of COVID-19 in a Globalized World. *Am J Public Health*. 2021;111(5):876-880. https://doi.org/10.2105/AJPH.2021.306201 PMID:33734846
19. Gee GC, Ro MJ, Rimoin AW. Seven reasons to care about racism and COVID-19 and seven things to do to stop it. *Am J Public Health*. 2020;110(7):954-955. https://doi.org/10.2105/AJPH.2020.305712
20. Data Foundation. *COVID-19 Household Impact Survey*. Last accessed February 1, 2022 from https://www.covid-impact.org/.
21. Rothman KJ. No adjustments are needed for multiple comparisons. *Epidemiology*. 1990;1(1):43-46. https://doi.org/10.1097/00001648-199001000-00010 PMID:2081237
22. Wong YJ, Tran KK, Kim S-H, Van Horn Kerne V, Calfa NA. Asian Americans' lay beliefs about depression and professional help seeking. *J Clin Psychol*. 2010;66(3):317-332. https://doi.org/10.1002/jclp.20653 PMID:20127962
23. Jagannathan M. 4 in 10 jobless workers are experiencing long-term unemployment — and Asian Americans are hardest hit. *Market Watch;* March 22, 2021. Last accessed February 1, 2022 from https://www.marketwatch.com/story/4-in-10-jobless-workers-are-experiencing-long-term-unemployment-and-asian-americans-are-hardest-hit-11615576039.
24. Sangalang CC, Gee GC. Depression and anxiety among Asian Americans: the effects of social support and strain. *Soc Work*. 2012;57(1):49-60. https://doi.org/10.1093/sw/swr005 PMID:22768628
25. Chae DH, Lee S, Lincoln KD, Ihara ES. Discrimination, family relationships, and major depression among Asian Americans. *J Immigr Minor Health*. 2012;14(3):361-370. https://doi.org/10.1007/s10903-011-9548-4 PMID:22083344
26. Budiman A, Ruiz NG Patten E. Key facts about Asian Americans, a diverse and growing population. Pew Research Center; April 29, 2021. Last accessed February 1, 2022 from https://www.pewresearch.org/fact-tank/2017/09/08/key-facts-about-asian-americans/.
27. Holland AT, Palaniappan LP. Problems with the collection and interpretation of Asian-American health data: omission, aggregation, and extrapolation. *Ann Epidemiol*. 2012;22(6):397-405. https://doi.org/10.1016/j.annepidem.2012.04.001 PMID:22625997
28. Esperat MC, Inouye J, Gonzalez EW, Owen DC, Feng D; DU FENG. Health disparities among Asian Americans and Pacific Islanders. *Annu Rev Nurs Res*. 2004;22(1):135-159. https://doi.org/10.1891/0739-6686.22.1.135 PMID:15368771
29. Gany F, Palaniappan L, Prasad L, Acharya S, Leng J. South asian health. from research

to practice and policy: an overview. *J Immigr Minor Health*. 2019;21(S1)(suppl 1):3-6. https://doi.org/10.1007/s10903-017-0552-1 PMID:28285333

30. Srinivasan S, Guillermo T. Toward improved health: disaggregating Asian American and Native Hawaiian/Pacific Islander data. *Am J Public Health*. 2000;90(11):1731-1734. https://doi.org/10.2105/AJPH.90.11.1731 PMID:11076241
31. Jahnke A. Asian Americans and the model minority dilemma [blog]. *BU Today;* March 23, 2021. Last accessed February 1, 2022 from https://www.bu.edu/articles/2021/asian-americans-and-the-model-minority-dilemma/.