

# Asian American Journal of Psychology

## **The Reemergence of Yellow Peril: Beliefs in the Asian Health Hazard Stereotype Predict Lower Psychological Well-Being**

Ronda F. Lo, Jessica K. Padgett, Jorida Cila, Joni Y. Sasaki, and Richard N. Lalonde

Online First Publication, April 14, 2022. <http://dx.doi.org/10.1037/aap0000291>

### CITATION

Lo, R. F., Padgett, J. K., Cila, J., Sasaki, J. Y., & Lalonde, R. N. (2022, April 14). The Reemergence of Yellow Peril: Beliefs in the Asian Health Hazard Stereotype Predict Lower Psychological Well-Being. *Asian American Journal of Psychology*. Advance online publication. <http://dx.doi.org/10.1037/aap0000291>

# The Reemergence of Yellow Peril: Beliefs in the Asian Health Hazard Stereotype Predict Lower Psychological Well-Being

Ronda F. Lo<sup>1</sup>, Jessica K. Padgett<sup>1</sup>, Jorida Cila<sup>1, 2</sup>, Joni Y. Sasaki<sup>3</sup>, and Richard N. Lalonde<sup>1</sup>

<sup>1</sup> Department of Psychology, York University

<sup>2</sup> Department of Psychology, Ryerson University

<sup>3</sup> Department of Psychology, University of Hawai'i at Mānoa



The anti-Asian sentiment in Canada and the U.S. during the coronavirus disease (COVID-19) pandemic centers on perceptions of East and Southeast Asians as “health hazards”, due to their alleged animal-eating habits, uncleanliness, and tendency to spread diseases. In a preregistered study, we demonstrated that for East and Southeast Asians in Canada and the U.S., their belief that society holds the Asian health hazard stereotype was associated with higher distress and lower life satisfaction. No differences were observed between East and Southeast Asian Americans ( $n = 352$ ) and Canadians ( $n = 351$ ), as well as Chinese and non-Chinese participants. Importantly, these effects were robust to pandemic- and discrimination-related stressors. We also demonstrated that Asian health hazard and perpetual foreigner stereotypes were psychometrically distinct. Overall, our findings highlight how perceptions of negative societal views, particularly those reminiscent of the Yellow Peril narrative, are uniquely associated with psychological well-being among East and Southeast Asian Americans and Canadians.


### What is the public significance of this article?


Racist rhetoric toward East and Southeast Asian Americans and Canadians during COVID-19 tends to center on three themes—unclean food practices, eating any kind of animal, and spreading diseases—that form an “Asian health hazard” stereotype. For East and Southeast Asians in Canada and the U.S., believing that their group is being perceived as “health hazards” is associated with lower psychological well-being.

**Keywords:** East Asian, Southeast Asian, Canada, stereotypes, health hazard

**Supplemental materials:** <https://doi.org/10.1037/aap0000291.supp>


Ronda F. Lo  <https://orcid.org/0000-0001-7775-0019>


Jessica K. Padgett  <https://orcid.org/0000-0001-8911-4407>


Jorida Cila  <https://orcid.org/0000-0001-8741-0683>

Our Open Science Framework page at [osf.io/6tpjg](https://osf.io/6tpjg) contains all the data, code, and materials for this study.

This work was supported by the Social Science and Humanities Research Council (SSHRC) Insight Grant awarded to the last two authors. We would also like to thank Nagashree Thovinakere and Uyen Nhi Nguyen for their coding assistance.

 The data are available at <https://osf.io/6tpjg/>.

 The experiment materials are available at <https://osf.io/6tpjg/>.

 The preregistered design is available at <https://osf.io/qy529>.

Correspondence concerning this article should be addressed to Ronda F. Lo, Department of Psychology, York University, Behavioral Sciences Building, 4700 Keele Street, Toronto, ON M3J 1P3, Canada. Email: [rondalo@yorku.ca](mailto:rondalo@yorku.ca)

In the early months of the coronavirus disease (COVID-19) outbreak, widespread anti-Chinese sentiment erupted in Canada (Chan, 2020) and the U.S. (Kelley, 2020). Then-President Donald Trump infamously referred to COVID-19 as the “Chinese virus” and “kung flu” (Itkowitz, 2020). Defending Trump’s use of these phrases, Senator John Cornyn further stated that “China is to blame because they’re the culture where people eat bats and snakes and dogs and things like that” (Shen-Berro, 2020). Such rhetoric could be found among laypeople as well. Canadian singer Bryan Adams was noted for making aggressively racist comments (Dunham, 2020), and an analysis of Twitter data over the month of March 2020 found an increase in anti-Asian hashtags related to COVID-19 (Hswen et al., 2021).

These public remarks reflect an anti-Asian sentiment that has long existed in Canada and the U.S.: the Yellow Peril narrative. This narrative derides Asians as dangerous foreigners who pose an

existential threat to Western society (Kawai, 2005; Leung, 2008). While this was the dominant narrative associated with Asians in Canada and the U.S for several decades, it was largely replaced with other stereotypes in the latter half of the 20th century, the most prominent being the model minority stereotype (Wu, 2014). As such, a substantial amount of psychological literature has documented these more recent stereotypes while those related to the Yellow Peril narrative have received less attention. With the outbreak of COVID-19, however, this Yellow Peril-like narrative—that Asians are a threat to Western society—seems to have been quickly resurrected. Specifically, East and Southeast Asians have been perceived as (a) having unclean food practices, (b) eating any kind of animal, and (c) spreading disease. Together these perceptions present East and Southeast Asians as “health hazards” for Western society. We had three goals for the present study: (a) develop a novel measure of this Asian health hazard stereotype to assess East and Southeast Asians’ beliefs about the stereotype, (b) assess its association with psychological well-being for East and Southeast Asian Americans and Canadians, and (c) determine whether there are cross-national differences.

### Asian American Discrimination and Associated Psychological Outcomes

Asians in Canada and the U.S have long been targets of discrimination and stereotyping. The Yellow Peril narrative is perhaps one of the earliest and most pervasive examples of this. Historically, this narrative has depicted people of Asian heritage as “invaders” in Western spaces. This narrative was typically deployed as a means of opposing their migration to Canada and the U.S., alleging their presence would undermine Western cultural values and supersede the power of the White race (Kawai, 2005; Lee, 1999). Perceptions began to change in the 1960s; however, with the emergence of the “model minority” stereotype, which deliberately contrasted Asian Americans with African Americans and other minority groups in the U.S who were fighting for civil liberties at the time (Lin et al., 2005; Wu, 2014). The model minority stereotype, which is still prevalent today in both Canada and the U.S., depicts Asians as smart, hardworking, and competent. They are considered the “ideal” minority which other minority groups should model themselves after. However, remnants of the Yellow Peril narrative may have continued to underlie this seemingly positive stereotype. For instance, Asian Americans and Canadians are often depicted as being *too* competent, posing an existential threat to the status quo (Lin et al., 2005; see and Kristof, 2015 for explicit depictions of this in American and Canadian media).

In addition to the contemporary model minority stereotype, more blatantly negative stereotypes of Asians have been documented, such as being perceived as lacking in warmth and being unsociable (Fiske et al., 2002; Ho & Jackson, 2001; Lin et al., 2005; Wong et al., 2012), and they are often viewed as “perpetual foreigners” (Cheryan & Monin, 2005; Devos & Banaji, 2005; Huynh et al., 2011; Sue et al., 2007; Zou & Cheryan, 2017). These stereotypes largely fall in line with the Yellow Peril narrative, depicting people of Asian heritage as outsiders in Canada and the U.S. These and other stereotypic depictions of Asian Americans and Canadians are often insinuated through racial microaggressions, which are typically subtle and invisible to perpetrators, and even targets (Sue et al., 2007). This invisibility, combined with the notion that many of the

stereotypes associated with this group are viewed as positive, can lead to an underestimation of the negative experiences of Asian Americans and Canadians.

Several negative psychological consequences have been associated with the stereotypes related to Asian populations. Feelings of marginalization and distress, lowered life satisfaction, greater identity conflict, and poorer academic performance have all been documented (Cheryan & Bodenhausen, 2000; Czopp et al., 2015; Gupta et al., 2011; Huynh et al., 2011; Oyserman & Sakamoto, 1997; Padgett et al., 2020; Siy & Cheryan, 2013). Encountering stereotypes and racial microaggressions about one’s group, positive or negative, can also lead to racism-related stress through stereotype threat (i.e., pressure to represent one’s social group in a positive manner; Steele, 1997), denial of other group identities (e.g., American or Canadian identity; Cheryan & Monin, 2005), and denial of individuality (Siy & Cheryan, 2013). Encounters of racial microaggressions have also been associated with poorer sleep quality (Ong et al., 2017) and a range of greater depressive and other mental health symptoms (Gee et al., 2007; Huynh, 2012).

It is worth noting that direct personal experiences are not necessary for ethnic minorities to experience racism-related stress. Minorities tend to be more aware of group discrimination than they are of personal discrimination (Dion & Kawakami, 1996; Taylor et al., 1990), and this belief of group discrimination can elicit stress and lowered well-being due to feelings of anticipation about being a potential victim of discrimination (Ong et al., 2017; Pinel, 1999). Further, although people who are of Asian heritage come from a variety of cultural, national, and ethnic backgrounds, they are often treated as belonging to a monolithic group in Canada and the U.S. Indeed, the invalidation and dismissal of interethnic differences is a prevalent type of racial microaggression (Sue et al., 2007). This perceived homogeneity means that regardless of one’s specific cultural or ethnic background, the racialized experiences of many Asian Canadians and Americans are similar. Filipino Americans and East Asian Americans, for example, may be similarly perceived as perpetual foreigners and treated as second-class citizens (Nadal et al., 2012; Sue et al., 2007). Filipino, Vietnamese, Lao, and other Southeast Asian students also report feeling the pressure and stress to perform up to stereotypically high-academic expectations that are typically associated with East Asians (Ngo & Lee, 2007; Rodriguez-Operana et al., 2017; Tang & Kao, 2012). As such, we should expect that regardless of their specific ethnicity or cultural background, East and Southeast Asians alike would be subject to similar stereotypes and/or anticipate similar fallout from such stereotypes because they tend to be perceived similarly by outgroups. In the case of the COVID-19 pandemic, even though much of the initial anti-Asian rhetoric was directed toward Chinese people specifically, individuals from other East Asian and Southeast Asian communities were also vulnerable to these attacks (Jeung et al., n.d.; Kong et al., n.d.).

### The “Asian Health Hazard” Stereotype

Since the COVID-19 pandemic, negative perceptions of Asians have increased (Dhanani & Franz, 2020) and these perceptions seem to differ from the stereotypes that have typically been examined in contemporary psychological research. The anti-Asian sentiments observed during COVID-19 have tended to accentuate the foreignness and threat narratives which had been mostly dormant in the age of the model minority stereotype. Specifically, depictions of East

and Southeast Asians as having cultural preferences for unclean food practices, eating any kind of animal, and having tendencies to spread diseases to Western society from abroad seem to have gained prominence.

While such stereotypes may have become more salient during the COVID-19 pandemic, their existence precedes the outbreak. For example, similar widespread discrimination against East and Southeast Asians occurred during the Severe Acute Respiratory Syndrome (SARS) 2003 outbreak. The worst affected region for SARS outside of China and Hong Kong was Toronto, with a few hundred cases and 44 deaths (Health Canada, 2003). During this time, East and Southeast Asian communities in Toronto faced rampant discrimination, including alienation on public transport and explicit profiling of East and Southeast Asians in the workplace and in schools (Kwong, 2020; Leung, 2008; Wilkinson, 2020). Indeed, the content of the discriminatory remarks made at this time were similar to those made during the outbreak of COVID-19, for example, being repeatedly asked if they had the virus (Kwong, 2020) or being perceived as “filthy and diseased” (Leung, 2008, p. 3).

Although the perception that East and Southeast Asians carry diseases may have been exacerbated by the threat of COVID-19 and SARS, the associated stereotypes about unclean food practices or inappropriate animal eating are not exclusive to disease outbreaks. In fact, well-known lay perceptions about the cleanliness and safety of Asian food are manifest in “Chinese restaurant syndrome”: a popular misconception that consuming Chinese and other Asian food allegedly leads to somatic symptoms because of the added monosodium glutamate (MSG), even though MSG is used in many non-Asian cuisines and naturally occurs in many foods (Yeung, 2020). Further, the eating of “exotic animals” as well as domestic animals, like cats and dogs, which are not eaten in Canada or the U.S., is another common negative food association commonly attributed to East and Southeast Asians (Ho, 2018).

These long-held stereotypes quickly gained prominence in the early outbreak of COVID-19, suggesting this Yellow Peril narrative had been lying dormant, but not quite forgotten. For instance, many individuals were attributing the spread of COVID-19 to the perceived unclean eating habits of Chinese people (Dunham, 2020; Shen-Berro, 2020). These perceptions were built on the back of early news reports which suggested that COVID-19 originated from wet markets in Wuhan, China, corroborating long-held stereotypes about the “exotic” eating habits of East and Southeast Asians (King, 2020). This coincided with the notion that East and Southeast Asians, who are stereotyped as foreign (Zou & Cheryan, 2017), carried these diseases from abroad.

Altogether, these patterns suggest that East and Southeast Asians are uniquely perceived as “health hazards” whose foreign cultural practices undermine Western safety. While stereotyping East and Southeast Asians as health hazards did not originate from the COVID-19 pandemic, it is possible that such stereotypes have been made more salient by the pandemic, as suggested by the observed increase in anti-Asian racism and discrimination (Dhanani & Franz, 2020; Pew Research Center, 2020). Presently, the concern is that the widespread impact of COVID-19 on day-to-day living (Wolf, 2020) may also have long-term consequences on lay perceptions of East and Southeast Asians in Canada and the U.S. That is, COVID-19 may have facilitated the reemergence of a persistent, Yellow Peril-like perception of East and Southeast Asians. We term this perception the “Asian health hazard”

stereotype, and we predict that the increased perception of East and Southeast Asians as health hazards might have negative psychological consequences for East and Southeast Asian Americans and Canadians.

### American Versus Canadian Contexts

Most research on East and Southeast Asians living in North America comes from the U.S. Since the U.S and Canada share similar histories regarding East and Southeast Asian immigration and Yellow Peril perceptions (Sismondo, 2017), it could be argued that East and Southeast Asians’ experiences in both countries are similar. On the other hand, there are some key differences between American and Canadian contexts, as well as cross-national differences in how COVID-19 has impacted each country, that may be relevant to the stereotype-based consequences for these groups.

Canada experienced less East and Southeast Asian immigration than the U.S up until the 20th century. Because of this, a vast majority of East and Southeast Asian Canadians are 1st generation (Statistics Canada, 2017) and tend to congregate in a few major cities (Ansari, 2018; Statistics Canada, 2011). In 2011, for example, almost three quarters of all Chinese people in Canada lived in Toronto or Vancouver (Statistics Canada, 2011). In contrast, East and Southeast Asian Americans tend to congregate in multiple major cities across many different states (United States Census Bureau, n.d.). The relatively greater ethnic density of East and Southeast Asian Canadian communities, therefore, may provide East and Southeast Asian Canadians a buffer against hostile experiences. Moreover, in the early months of COVID-19 (when the data for this study were collected) the health and security of the U.S was negatively impacted to a greater extent than it was in Canada (Panetta, 2020), and this may have exacerbated discrimination toward East and Southeast Asian Americans specifically.

More broadly, the similarity between the U.S and Canada is often assumed, but rarely empirically tested. In the same vein, the experiences of being a minority member (i.e., being East and Southeast Asian) are assumed to be similar whether they live in the U.S or Canada. Since few studies examine East and Southeast Asian stereotyping and racism in Canada (see Padgett et al., 2020 as an example), we sought to explore how the Asian health hazard stereotype can impact East and Southeast Asians in not only the U.S., but Canada as well.

### Overview of the Present Study

To date, several studies have begun to examine how discrimination during COVID-19 is associated with poorer mental health for East and Southeast Asian Americans and Canadians (Chae et al., 2021; Cheah et al., 2020; Cho et al., 2020; Lou et al., 2021; Wu et al., 2020, 2021). No research, however, has attempted to measure how the *content* of the beliefs underlying this racism (i.e., unclean food practices, indiscriminate animal eating, and disease-spreading) is associated with psychological well-being. Thus, the present study aims to measure the content of the Asian health hazard stereotype, and to investigate the association between beliefs that this stereotype is held by others and psychological well-being for East and Southeast Asian Americans and Canadians specifically (but not exclusively) during the COVID-19 pandemic.

We preregistered two hypotheses (anonymized link: [osf.io/qy529/?view\\_only=9f9653daa9bd4b528f8820a407f568b4](https://osf.io/qy529/?view_only=9f9653daa9bd4b528f8820a407f568b4)): (a) greater belief in the existence of a broader societal Asian health hazard stereotype will be associated with lower psychological well-being among East and Southeast Asian Americans and Canadians; and (b) the association between the Asian health hazard stereotype and negative psychological well-being may be stronger for East and Southeast Asian Americans, compared to East and Southeast Asian Canadians. We also investigated the robustness of these relations. Specifically, we tested whether belief in the Asian health hazard stereotype predicts lower psychological well-being above and beyond COVID-19- and discrimination-related stress. We also examine whether the Asian health hazard stereotype is distinct from the perpetual foreigner stereotype, and whether the results of our analyses are similar for the non-Chinese participants in our sample. Finally, we explored open-ended responses regarding experiences of discrimination since the COVID-19 outbreak. All data, syntax, and Supplemental Materials are available on the Open Science Framework (anonymized link: [osf.io/6tpjg/?view\\_only=a57e08aed5534ad6b036fba3e9d441f8](https://osf.io/6tpjg/?view_only=a57e08aed5534ad6b036fba3e9d441f8)).

## Method

### Participants

We received ethics approval for this study on May 11th, 2020. Participants were recruited from Qualtrics Panels from May 28<sup>th</sup> 2020–June 25<sup>th</sup> 2020 to complete a 15-min online survey during the first wave of the COVID-19 outbreak. We required participants to self-identify as East or Southeast Asian because both groups were at risk of being racially profiled as East Asian/Chinese and thus potential targets for discrimination. We also required participants to be born in the U.S or Canada, or to have arrived in either country before the age of seven. The reason for this cut-off is that discrimination-related stress may have distinct repercussions depending on generational status in Canada or the U.S., with second-generation immigrants tending to be particularly aware of, and sensitive to, racial microaggressions (Wang et al., 2013; Yip et al., 2008). In order to avoid the potential confound of generational status (e.g., Padgett et al., 2020), we decided to only collect second-generation (or early arriving “1.5” generation) participants who would have completed the entire public education system in either country (in both countries, first grade of elementary school begins before the age of seven). We preregistered a sample of 700 participants and recruited 734 participants to account for data attrition. After removing those who failed at least two of three response check items ( $n = 30$ ) and one participant for being neither East Asian nor Southeast Asian, our final participant count was  $N = 703$ , evenly split between Americans ( $n = 352$ ; 56.0% female;  $M_{\text{age}} = 42.96$  years,  $SD_{\text{age}} = 16.28$ ) and Canadians ( $n = 351$ ; 55.0% female;  $M_{\text{age}} = 36.99$  years,  $SD_{\text{age}} = 13.68$ ).

The cultural breakdown by nation varied considerably (Table 1). Chinese ethnicity was the predominant ethnic group in both the U.S. (48.3%) and Canada (70.9%), although the Canadian proportion was much larger. Most participants were born in their respective country of residence (U.S.: 85.2%; Canada: 78.4%). More than half of the American sample resided in California (39.1%), New York (10.6%), and Hawaii (5.7%), and a vast majority of the Canadian

**Table 1**  
*Cultural Background Breakdown by Nation*

Cultural background	Total	Americans	Canadians
	$N = 703$	$n = 352$	$n = 351$
Chinese	59.6% (419)	48.3% (170)	70.9% (249)
Japanese	12.7% (89)	18.2% (64)	7.1% (25)
Korean	8.0% (56)	10.5% (37)	5.4% (19)
Vietnamese	5.0% (35)	6.8% (24)	3.1% (11)
Filipino	4.6% (32)	5.4% (19)	3.7% (13)
Hong Konger	2.6% (18)	1.1% (4)	4.0% (14)
Taiwanese	1.7% (12)	2.0% (7)	1.4% (5)
Thai	0.7% (5)	1.1% (4)	0.3% (1)
Lao	0.6% (4)	0.6% (2)	0.6% (2)
Cambodian	0.4% (3)	0.6% (2)	0.3% (1)
Malaysian	0.3% (2)	0.6% (2)	—
Indonesian	0.1% (1)	0.3% (1)	—
Mixed	3.4% (24)	4.0% (14)	2.9% (10)
Unknown	0.4% (3)	0.6% (2)	0.3% (1)

*Note.* “Mixed” refers to those who reported more than one ethnicity (e.g., Japanese and Italian, Chinese and Vietnamese).

sample resided in Ontario (54.0%), British Columbia (23.7%), and Alberta (12.6%).

### Measures

#### *Belief in the Asian Health Hazard Stereotype*

We developed the Asian Health Hazard Stereotype Scale, to assess the belief that there is an Asian health hazard stereotype held by greater society. The conceptualization of Asian health hazard stereotype was based on three prominent perceptions of East Asians during the height of the pandemic: East Asians have unclean or unsafe food practices, East Asians will eat any animal, and East Asians spread diseases. Eight items were developed to address these themes (Table 2) and were rated using a 7-point Likert scale, from *strongly disagree* (1) to *strongly agree* (7). An exploratory factor analysis (EFA) was used to examine the factor structure of these eight items. A scree plot initially indicated a 3-factor structure, so we explored 1-factor, 2-factor (in anticipation that Unclean and Animal factors may be related enough to be one factor, and disease as the second factor), and 3-factor models. The fit statistics for a 1-factor and 2-factor model were adequate (1-factor: SRMR = .04, RMSEA = .11, TLI = .94; 2-factor: SRMR = .02, RMSEA = .09, TLI = .96), but there were large residual correlations ( $r_s = .07-.11$ ). The 3-factor model successfully distinguished the three underlying constructs, with some cross-loading for item five (SRMR = .01, RMSEA = .04, TLI = .99). Since the interfactor correlations for the 3-factor model were very high (.68–.83), we used confirmatory factor analysis (CFA) to estimate a higher order latent Asian health hazard factor, indicated by the unclean, animal, and disease latent factors, while allowing for item five to cross-load (Table 2). The higher order model had excellent fit (SRMR = .02, RMSEA = .06, CFI = .99, TLI = .99) and aligned with our theoretical conception of the measure. Thus, all eight items that were initially developed for the measure were retained for the final structural equation model (SEM) model in the primary analysis. The descriptive statistics for each item are presented in Table 2, and a composite score of all eight items is presented in Table 3. Altogether the items provided excellent reliability ( $\alpha = .94$ ).

**Table 2***Asian Health Hazard Stereotype Scale Items and Factor Loadings*

Item	U.S.	CA	Unclean	Animal	Disease
Many Americans/Canadians think that ...					
(1) ... East Asians tend to have unsanitary food practices	4.41 (1.53)	4.45 (1.59)	.86		
(2) ... the foods East Asians prepare are often unsafe to eat	4.12 (1.55)	4.01 (1.68)	.86		
(3) ... most East Asians will eat just about any animal	4.66 (1.65)	4.65 (1.65)		.90	
(4) ... East Asians have no issues eating exotic animals	4.91 (1.46)	4.69 (1.54)		.82	
(5) ... dangerous diseases have often come from East Asians eating exotic animals	4.69 (1.59)	4.70 (1.58)		.32	.54
(6) ... East Asians are mostly to blame for the international spreading of several diseases	4.65 (1.63)	4.60 (1.62)			.84
(7) ... East Asians have a history of spreading disease internationally	4.18 (1.58)	4.33 (1.64)			.88
(8) ... East Asians should be considered a high-risk group to their society because they bring over diseases	3.95 (1.57)	4.07 (1.67)			.83
Lower order factor loadings			.95	.90	.97

*Note.* U.S. and CA refer to item-level means (standard deviation in parentheses) for Americans and Canadians, respectively. There were no differences between nations, all  $ps > .06$ . Unclean, Animal and Disease refer to standardized factor loadings, which were all statistically significant at  $p < .001$ .

**Life Satisfaction**

One of our measures of psychological well-being was life satisfaction. Three items from the Satisfaction with Life Scale (Diener et al., 1985) were used to measure subjective well-being. These three items (“In most ways my life is close to my ideal”, “The conditions of my life are excellent”, and “I am satisfied with my life”) are better than the other items at capturing East Asians’ subjective well-being (Kim et al., 2016; Oishi, 2006). The items use a 7-point Likert scale, from *strongly disagree* (1) to *strongly agree* (7). Past research with the Satisfaction with Life Scale has demonstrated convergent and discriminant validity with other well-being measures (Lucas et al., 1996; Pavot & Diener, 1993). The measure had excellent reliability ( $\alpha = .91$ ).

**Distress**

Our other measure of psychological well-being was distress. The Brief Symptoms Inventory-18 (BSI-18; Derogatis, 2001) was used to measure psychological distress symptoms. Although the inventory contains somatization, depression, and anxiety subscales, the inventory also allows for the measurement of a 1-factor psychological distress factor, which has been used in Asian American samples (Lu et al., 2019). Example items from each subscale include asking about feeling “weak”, “lonely”, and “tense”, respectively. The items use a 5-point scale indicating degree of bother for each symptom, from not at all (0) to extremely (4). Past research has demonstrated both convergent and discriminant validity with the Brief Symptoms Inventory-18 (Franke et al., 2017; Lu et al., 2019). The 18 items across the three subscales had excellent reliability ( $\alpha = .95$ ).

**COVID-19 Stressors**

We asked about three COVID-19 related stressors that were likely related to life satisfaction and distress: whether they worked an “essential service” job that requires face-to-face contact with the public, whether they lived with dependents, and how much monthly income was lost. The first two items were measured as dichotomous

variables (0 = No, 1 = Yes), and the third item was measured as a percentage of monthly income lost (0%–100%).

**Belief in the Perpetual Foreigner Stereotype**

The Foreigner/Not Belonging subscale from the Racial Microaggressions Scale (Torres-Harding et al., 2012) was adapted to measure the perpetual foreigner stereotype. The three items were “Other people assume that East Asian Americans/Canadians are foreigners”, “People suggest that East Asian Americans/Canadians are not ‘true’ Americans/Canadians”, and “People often ask where East Asian Americans/Canadians are from”. The Foreigner/Not Belonging subscale has demonstrated convergent validity in previous studies, where higher scores have been associated with greater number of racist events experienced, and with Latino and Asian Americans providing higher scores compared to African Americans. Although not explicitly tested, the Foreigner/Not Belonging subscale demonstrated discriminant validity from other racial microaggressions, such as criminality (Torres-Harding et al., 2012). The measure had adequate reliability ( $\alpha = .82$ ).

**Discrimination Stressors**

We included three items that asked about perceived discrimination: news about racism toward East Asians, perceived current group-level discrimination, and perceived personal discrimination before and after COVID-19 (see Table 3 for item descriptions). All items had a 10-point scale, where 0 = none and 10 = a lot.

**Open-Ended Item on Discrimination Experiences**

We asked participants to describe personal discrimination experiences since the COVID-19 outbreak using this prompt: “Please take some time to describe what discriminatory behaviors you have experienced since the COVID-19 outbreak, and how you felt about it.”

**Table 3**  
*Descriptive Statistics of American Versus Canadian Participants*

Variable description	U.S.	Canada	<i>p</i>
<b>Stereotype and discrimination variables</b>			
Belief in Asian Health Hazard stereotype (1–7)	4.44 (1.30)	4.44 (1.39)	.941
Belief in perpetual foreigner stereotype (1–7)	4.95 (1.23)	4.73 (1.30)	.025
Discrimination in news. “How much news/online media coverage have you seen about the increased discrimination towards East Asians?” (0–10)	5.04 (2.61)	6.00 (2.57)	< .001
Perceived group discrimination. “Since the COVID-19 outbreak, how much discrimination do you think East Asians (as a group) in your country are experiencing?” (0–10)	6.67 (2.24)	6.89 (2.08)	.175
Discrimination before COVID-19. “Please think about your experiences in the past few years, before the COVID-19 outbreak started. Do you feel like you have been discriminated against because of your cultural background?” (0–10)	3.90 (2.74)	4.23 (2.74)	.112
Discrimination after COVID-19. “Please think about your experiences since the COVID-19 outbreak first started. Do you feel like you have been discriminated against because of your cultural background?” (0–10)	3.81 (3.20)	4.39 (3.09)	.015
<b>Outcome variables</b>			
Life satisfaction (1–7)	4.11 (1.51)	4.14 (1.45)	.761
Distress (0–4)	0.66 (0.74)	0.66 (0.71)	.958
<b>COVID-19 related stressors</b>			
% Working essential jobs	16.52	20.51	—
% Taking care of dependents	36.47	41.03	—
% Lost no income	37.43	31.17	—
% Lost all income	4.79	8.02	—
Median income loss excluding those who lost no/all income	20.00	20.00	—

*Note.* Means (standard deviations in parentheses) are reported except where specified. We used composite scores for belief in Asian health hazard stereotype, belief in perpetual foreigner stereotype, life satisfaction, and distress. Quotations indicate exact item wording. Parentheses in variable description indicate range of possible scores. Comparisons between Americans and Canadians were conducted with Welch’s two-sample *t* test. COVID-19 = coronavirus disease.

## Results

### Descriptive Statistics

Descriptive statistics by nation are provided in Tables 2 and 3. Americans and Canadians did not differ in their agreement with statements about the Asian health hazard stereotype and tended to report just above the mid-point category, between “Neither agree nor disagree” and “Somewhat agree” (composite item  $M = 4.44$ ). Canadians reported on average greater news awareness ( $M = 6.00$ ) and personal discrimination ( $M = 4.39$ ) since the COVID-19 outbreak compared to Americans ( $M = 5.04$  and  $M = 3.81$ , respectively). Participants tended to report relatively little change in experienced discrimination before and after COVID-19. Zero-order correlations between all relevant variables appear in Table 4.

### Main Analyses

We first conducted a SEM to examine how belief in the Asian health hazard stereotype predicts life satisfaction and distress. All SEMs use full information maximum likelihood estimator to include all cases with missing data. We specified life satisfaction and distress as latent variables, with their respective scale items as indicators. Asian health hazard stereotype was specified as a higher order factor composed of Unclean, Animals, and Disease subfactors, which were in turn indicated by their respective subscale items. We estimated two regression equations: life satisfaction regressed on Asian health hazard stereotype and distress regressed on Asian health hazard stereotype. Both equations included the COVID-19 stressor items as observed covariates. Initial model fit was acceptable, but could be improved,  $\chi^2(451, N = 703) = 2077.40, p < .001, SRMR = 0.05,$

$RMSEA = 0.07, CFI = 0.90, TLI = 0.88.$  We made three post hoc modifications to the SEM based on values of modification indices ( $MI > 90$ ) and theoretical considerations.<sup>1</sup> The final SEM had good fit,  $\chi^2(448, N = 703) = 1788.10, p < .001,$ <sup>2</sup>  $SRMR = 0.05, RMSEA = 0.07, CFI = 0.91, TLI = 0.90.$  The final SEM model was then evaluated by nation. We first specified the SEM by nation by allowing all parameters to be freely estimated in both nations, and then specified a second SEM by nation, but we constrained the regression coefficients to be the same across nations. Chi-squared difference tests revealed no significant difference between the two models, suggesting that when the SEM allowed regression coefficients to differ by nation, they were no different from each other as compared to an SEM that forced the regression coefficients to be the same,  $\chi^2(8, N = 703) = 9.20, p = .33.$  Because there seemed to be no differences between the two groups, we pooled the American and Canadian data together for the final SEM (see Figure 1).

Belief in the Asian health hazard stereotype predicted poorer life satisfaction,  $b = -0.12, 95\% \text{ CI } [-0.20, -0.03], \beta = -0.10, p = .011,$  above and beyond COVID-19 stressors<sup>3</sup> such as working an

<sup>1</sup> We allowed three error covariances within the Brief Symptoms Inventory-18: (a) “Pains in heart” and “Trouble getting breath” were both somatization items (Modification index: 101), (b) “Feeling worthless” and “Feeling hopeless” were both depression items (Modification index: 97), and (c) “Feeling scared” and “Spells of panic” were both anxiety items (Modification index: 94).

<sup>2</sup> It is conventional to report the chi-square test for model fit, but it is often statistically significant when sample size is large. It is therefore not a very useful statistic to evaluate model fit (Cudeck & Henly, 1991), and the other model fit statistics (e.g., RMSEA) should be used instead.

<sup>3</sup> Removing our preregistered covariates did not change the results.

**Table 4**  
*Bivariate Pearson's Correlations*

Variable	1	2	3	4	5	6	7	8
1. Asian health hazard	—	.54**	.21**	.38**	.25**	.43**	-.07	.24**
2. Perpetual foreigner	.44**	—	.22**	.38**	.36**	.40**	-.08	.23**
3. Racism in news	.20**	.27**	—	.47**	.31**	.38**	-.05	.17**
4. Perceived group disc.	.36**	.43**	.51**	—	.40**	.49**	-.05	.23**
5. Disc. before COVID-19	.23**	.33**	.44**	.46**	—	.68**	.04	.17**
6. Disc. after COVID-19	.28**	.32**	.50**	.51**	.74**	—	-.08	.35**
7. Life satisfaction	-.11*	-.09	.04	-.03	-.05	.02	—	-.34**
8. Distress	.20**	.19**	.13*	.14*	.24**	.21**	-.36**	—

*Note.* Lower diagonal represents American bivariate correlations, and upper diagonal represents Canadian bivariate correlations. Disc. = discrimination; COVID-19 = coronavirus disease.  
\*  $p < .05$ . \*\*  $p < .01$ .

essential job,<sup>4</sup>  $b = 0.41$ , 95% CI [0.13, 0.69],  $\beta = 0.11$ ,  $p = .004$ , living with dependents,<sup>5</sup>  $b = 0.47$ , 95% CI [0.25, 0.69],  $\beta = 0.16$ ,  $p < .001$ , and income loss,  $b = -0.006$ , 95% CI [-0.01, -0.003],  $\beta = -0.14$ ,  $p < .001$ . Belief in the Asian health hazard stereotype also predicted greater distress,  $b = 0.07$ , 95% CI [0.05, 0.10],  $\beta = 0.22$ ,  $p < .001$ , controlling for income loss,  $b = 0.003$ , 95% CI [0.002, 0.005],  $\beta = 0.26$ ,  $p < .001$ . Although we also included working an essential job and living with dependents as control variables, they did not significantly predict distress; essential job:  $b = 0.02$ , 95% CI [-0.06, 0.09],  $\beta = 0.01$ ,  $p = .702$ ; dependents:  $b = -0.06$ , 95% CI [-0.12, 0.006],  $\beta = -0.07$ ,  $p = .079$ .

**Robustness Analyses<sup>6</sup>**

**Discrimination-Related Stress**

We conducted several analyses to test the robustness of the association between Asian health hazard stereotype and psychological well-being. First, we tested whether belief in the Asian health hazard stereotype predicted life satisfaction and distress even after controlling for discrimination-related stress in addition to COVID-19-related stress. We specified three variables as indicators for a discrimination-related stress latent variable: perceived personal discrimination after COVID-19 (standardized factor loading: 0.71), perceived group discrimination (std. factor loading: 0.74) and exposure to news about discrimination toward East Asians (std. factor loading: .63). We added discrimination-related stress as a covariate. Model fit was good,  $\chi^2(541, N = 703) = 1993.41$ ,  $p < .001$ , SRMR = 0.05, RMSEA = 0.06, CFI = 0.91, TLI = 0.90. Belief in the Asian health hazard stereotype continued to predict greater distress,  $b = 0.04$ , 95% CI [0.01, 0.07],  $\beta = 0.13$ ,  $p = .007$ , after controlling for discrimination-related stress,  $b = 0.04$ , 95% CI [0.02, 0.06],  $\beta = 0.21$ ,  $p < .001$ . Belief in the Asian health hazard stereotype continued to predict lower life satisfaction as well,  $b = -0.12$ , 95% CI [-0.23, -0.01],  $\beta = -0.11$ ,  $p = .030$ , though discrimination-related stress was not a predictor,  $b = 0.004$ , 95% CI [-0.06, 0.07],  $\beta = 0.01$ ,  $p = .898$ .

**Distinct From Perpetual Foreigner Stereotype**

Conceptually, belief in the Asian health hazard stereotype shares some similarity with belief in a perpetual foreigner stereotype, given they share associations about foreignness. An initial exploratory

factor analysis with items from the belief in the Asian health hazard and perpetual foreigner stereotype measures demonstrated that the perpetual foreigner items loaded on their own distinct factor regardless of how many factors were specified. This indirectly provides evidence for discriminant validity. Afterward, we specified belief in the perpetual foreigner stereotype as a latent factor in the full SEM and added it as a covariate. Model fit was excellent,  $\chi^2(541, N = 703) = 1973.80$ ,  $p < .001$ , SRMR = 0.05, RMSEA = 0.06, CFI = 0.91, TLI = 0.90. Asian health hazard stereotype remained significant in predicting distress,  $b = 0.05$ , 95% CI [0.02, 0.08],  $\beta = 0.15$ ,  $p = .002$ , even after controlling for belief in perpetual foreigner stereotype,  $b = 0.04$ , 95% CI [0.01, 0.07],  $\beta = 0.13$ ,  $p = .007$ . Neither Asian health hazard stereotype nor perpetual foreigner stereotype remained significant when simultaneously predicting life satisfaction; Asian health hazard:  $b = -0.07$ , 95% CI [-0.18, 0.04],  $\beta = -0.06$ ,  $p = .195$ ; perpetual foreigner:  $b = -0.08$ , 95% CI [-0.19, 0.03],  $\beta = -0.07$ ,  $p = .154$ .

**Chinese Versus Non-Chinese Measurement Invariance**

Since COVID-19 has especially heightened anti-Chinese sentiment, we considered that belief in the Asian health hazard stereotype may impact Chinese people in our sample differently than non-Chinese people. Therefore, we conducted a multigroup SEM comparing Chinese (i.e., those who identified as Chinese, Taiwanese, and Hong Konger) versus non-Chinese. Chi-squared difference tests indicate that the SEM with fully different parameters for Chinese versus non-Chinese did not significantly differ from the SEM that constrained the regression coefficients to be the same between Chinese versus non-Chinese,  $\chi^2(8, N = 703) = 14.86$ ,  $p = .062$ . This suggests that there was no statistical advantage for allowing

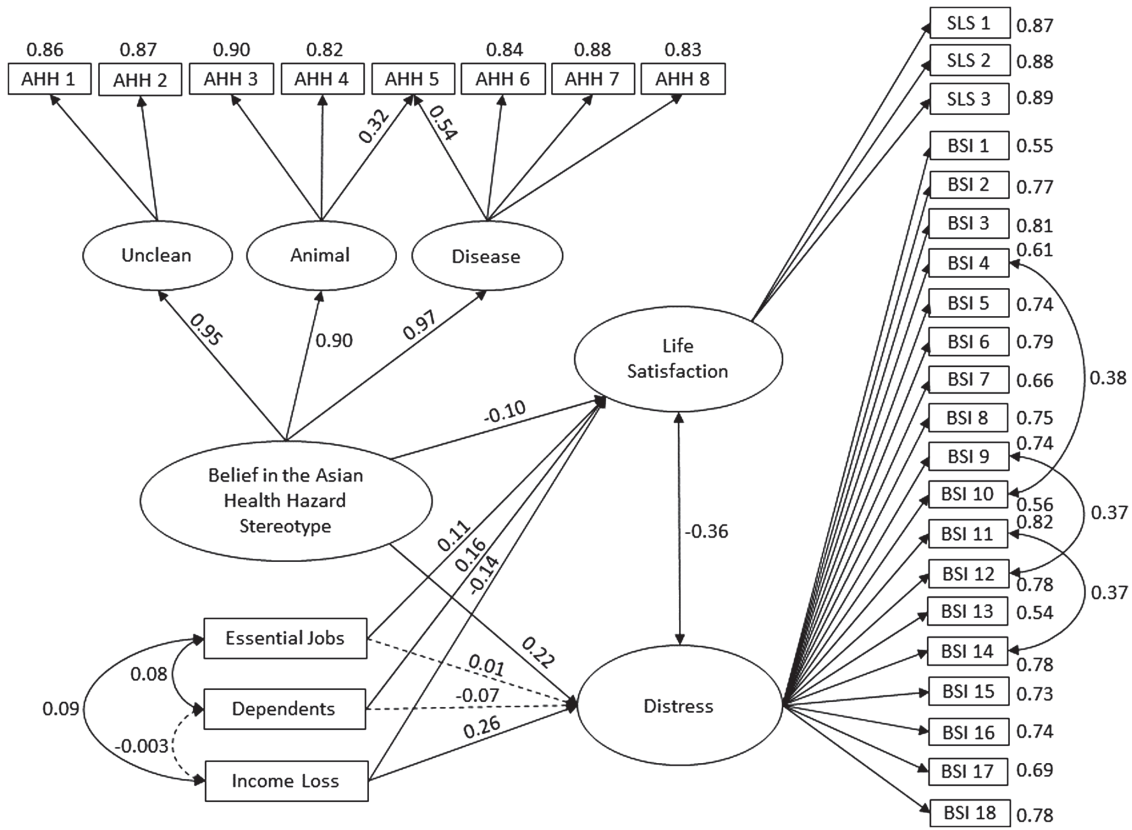
<sup>4</sup> Unexpectedly, those who worked an essential job reported better life satisfaction ( $M = 4.43$ ,  $SD = 1.43$ ) than those who did not ( $M = 4.05$ ,  $SD = 1.48$ ), despite having worse income loss ( $M = 29.90\%$  vs.  $M = 22.40\%$ , percentage of income lost for essential workers and nonessential workers, respectively).

<sup>5</sup> Like those with essential jobs, those who lived with dependents also reported better life satisfaction ( $M = 4.42$ ,  $SD = 1.47$ ) than those who did not ( $M = 3.94$ ,  $SD = 1.45$ ).

<sup>6</sup> All robustness analyses test the full SEM model, which includes the following latent and observed variables: Asian health hazard stereotype (predictor), well-being and distress (outcomes), and the COVID-19 stressors (covariates).



**Figure 1**  
Final Structural Equation Model



Note. All parameters are standardized. AHH = Asian Health Hazard Stereotype Scale items, SLS = Satisfaction with Life Scale items, BSI = Brief Symptoms Inventory items. Dashed arrows indicate nonstatistically significant paths with  $p > .05$ .

regression coefficients to differ between Chinese versus non-Chinese.

**Qualitative Accounts of Personal Experiences With Discrimination**

Participants were asked to “Please take some time to describe what discriminatory behaviors you have experienced since the COVID-19 outbreak, and how you felt about it”; 92.75% of the participants responded. Responses were coded by two undergraduate research assistants. They coded for (a) whether the participant experienced discrimination (yes, unsure, no), as well as the presence or absence of the following: (b) hearing about discrimination second hand, (c) seeing online discrimination or news about discrimination online, and (d) spontaneously mentioning Asian health hazard themes (unclean, animals, disease). Coders could code for multiple themes per comment. Coder agreement across themes was 78.68%, and initial Kappa coefficients assessing interrater reliability were acceptable within each theme: (a) .84, (b) .76, (c) .79, and (d) .65. After coding was completed, the coders and first author resolved any discrepancies.

In general, Americans and Canadians reported similar levels of discrimination (see Table 5). Roughly one-third of our sample reported experiencing at least one instance of discrimination; those

reporting no discrimination tended to attribute it to staying at home. Although not prompted, participants also mentioned being exposed to discrimination indirectly either by witnessing discrimination happening to others or hearing second-hand accounts, or through online media sources. To examine whether those who did not report personalized incidents were still exposed to discrimination second-hand, we conducted chi-square tests and phi correlations to examine rates of co-occurrence between reports of no personal discrimination (recoded as 0 = Yes/Unsure, 1 = No) and reports of exposure to discrimination. Results suggest that Canadians who did not experience discrimination themselves tended to mention hearing about discrimination second-hand:  $\chi^2(1, N = 317) = 11.66, p < .001, r_\phi = .21$  (e.g., “I have not experienced any behaviours myself but i know of people who have experienced racism due to the COVID-19 outbreak”). There was no association for Americans, however;  $\chi^2(1, N = 333) = 2.33, p = .127, r_\phi = .10$ . Canadians who reported no discrimination also tended to mention seeing discrimination from news or online sources,  $\chi^2(1, N = 317) = 7.38, p = .007, r_\phi = .16$ , perhaps qualifying their personal experience with media-based responses (e.g., “I haven’t experienced any discriminatory behaviours since the outbreak but have seen incidents on the news. Makes me upset”). There was also a weaker association for Americans,  $\chi^2(1, N = 333) = 3.01, p = .082, r_\phi = .11$ . Although not explicitly coded, there were several open-ended responses that

**Table 5**  
*Open-Ended Responses About Discrimination Experiences During the COVID-19 Outbreak*

Category	Example responses
Disc. (yes)	Racist comments, other people avoiding/shunning. I don't like it, but cannot waste time worrying about others discomfort. Luckily, nothing violent has occurred.
U.S.: 30.11% CA: 36.47%	People think i have covid-19 because im asian and i felt sad because everyone is picking on asians and treating them unfairly.
Disc. (unsure)	Just very slight glances that may or may not mean anything and could be a paranoid reaction on my part.
U.S.: 8.24% CA: 7.69%	Nothing overt. But sense a different feeling from strangers who don't know me ... and uneasiness and wariness because I'm Asian.
Disc. (no)	At work, a colleague made a comment about Covid-19 being a Chinese virus. I have not directly experienced hostility so far.
U.S.: 46.31% CA: 33.90%	I have not experience any discriminatory behaviours but have seen videos in the news. It makes be feel very sad and disappointed in Canadians.
2nd hand disc.	Staying away from you just because you're asian Making jokes about many things Seen some asian people get beat up Its messed up.
U.S.: 5.40% CA: 3.13%	Nothing more than usual, but others of my ethnic group telling me they've experienced incidents
Online disc.	On social media, I see way too much unnecessary hate towards Asians. it's unacceptable because we have done absolutely no wrong. I despise any racism towards us.
U.S.: 7.67% CA: 9.40%	I've seen an increasing number of racist comments/posts against the Chinese on social medias such as Twitter since the Coronavirus outbreak.
AHH themes	I have heard from others around me that they think asians tend to have unsanitary practices.
U.S.: 9.66% CA: 12.30%	I have seen many negative comments online where other people are blaming Chinese people for causing the outbreak and claiming we eat all kinds of animals.

*Note.* COVID-19 = coronavirus disease; Disc. = discrimination. AHH = Asian health hazard stereotype. U.S./CA represents % of codes in that code category for the U.S and Canada, respectively.

indicated that the source of these comments was sometimes from people they knew (e.g., “Made fun of by friends and at stores such as Redners”, “Avoiding, name calling (slurs), online trolls, bullying from peers”).

Participants also spontaneously mentioned Asian health hazard themes which tended to center on disease-spreading, but sometimes mentioned unclean practices or animal-eating. For example,

I have heard from others around me that they think Asians tend to have unsanitary practices. The exotic food that they eat is often a culture shock for them—some are led to believe that it is risky to eat certain foods and makes Asians more susceptible to getting a disease.

Those who reported experiencing discrimination (recoded as 0 = Unsure/No, 1 = Yes) tended to also mention Asian health hazard themes, Americans:  $\chi^2(1, N = 333) = 11.47, p < .001, r_{\Phi} = .20$ ; Canadians:  $\chi^2(1, N = 317) = 7.50, p = .006, r_{\Phi} = .16$ , (e.g., “you know the usual random yelling by strangers telling us thanks for bringing covid here, etc”). One participant even explicitly used the phrase Yellow Peril to describe their experiences “I know you might

not view this as anything but it feels like it to me. It's been a long time since I've experienced something like this but this moment felt like yellow peril”.

### Discussion

Through our study we sought to document East and Southeast Asian Americans' and Canadians' views about a Yellow Peril-like narrative that has been apparent in Canada and the U.S during the COVID-19 outbreak. We termed this stereotype the Asian health hazard stereotype, which contains the perception that East and Southeast Asians have unclean eating habits and spread dangerous diseases. In general, we found East and Southeast Asians tended to somewhat agree that society believes in the Asian health hazard stereotype, and that this was similar across Americans and Canadians. We demonstrated, in line with our first hypothesis, that belief in the Asian health hazard stereotype predicted lower life satisfaction and higher distress among East and Southeast Asian Americans and Canadians. These results held when controlling for pandemic-related and discrimination-related stressors. Even though participants did not tend to personally experience a large amount of discrimination, our data suggest that the belief that this stereotype exists among the public still predicted lower psychological well-being.

Contrary to our second hypothesis, we did not find cross-national differences. Both Americans and Canadians seemed to show a similar relationship between belief of the Asian health hazard stereotype and psychological outcomes. Given the strong discriminatory language coming from Americans compared to Canadians in leadership positions, we expected the exposure would be more prevalent and more psychologically substantial for Americans. Both samples, however, appeared to recognize the stereotype to the same degree and show similar patterns in relation to that exposure. In retrospect, this is not surprising; Canadians may tend to consume more news media and social media on international than domestic affairs, especially when it comes to the U.S (Menon, 2020). Although our results offer little insight into unique experiences of East and Southeast Asians between the two countries in this instance, we believe it is important for researchers to be mindful of how regional and national contexts may uniquely contribute to their experiences as cultural minorities.

We also provided initial evidence for the uniqueness of the Asian health hazard stereotype in comparison to another more commonly studied and related stereotype, the perpetual foreigner stereotype. Further, we demonstrated that being aware of the Asian health hazard stereotype predicts increased distress, even after controlling for belief of the broader perpetual foreigner stereotype. This pattern did not hold for life satisfaction, however, as neither Asian health hazard nor perpetual foreigner stereotype were significant predictors. Overall, our results suggest that both Asian health hazard and perpetual foreigner stereotypes are distinct stereotypes that have unique associations with distress.

In addition to our main hypotheses, another interesting takeaway from these results is the “spill-over” effect of this stereotype to multiple East and Southeast Asian ethnic and cultural groups. Indeed, our results did not substantially change when we examined the final SEM by Chinese versus non-Chinese participants. This suggests that discrimination toward one ethnic group can result in negative psychological consequences for other ethnic groups that

are perceived by out-group members to be similar. These themes also occurred in the open-ended responses, such as “people think all Asians regardless of Chinese, Korean, Japanese, etc. brought over COVID-19”, suggesting that non-Chinese East and Southeast Asians may anticipate discrimination toward them even if they are not the intended targets of such discrimination.

In light of these results, the study of the Asian health hazard stereotype seems to be an important topic for future research, especially in the context of increasing anti-Asian racism around the world since 2020. Exposure to rhetoric about Chinese or East Asians as “Asian health hazards” may happen through many avenues, as seen in our open-ended responses (e.g., personally, witnessed, online). Importantly, Asian health hazard rhetoric can be subtle. For example, some open-ended responses referred to “jokes” about Asian health hazard themes made by friends, peers, and co-workers. East and Southeast Asians are thus at risk for greater stress through exposure to these potential Asian health hazard reminders. Although untested in the present study, the Asian health hazard stereotype may be related to the increase in anti-Asian racism. Thus, it is pertinent that research developing interventions to reduce anti-Asian racism consider that the racism may be based on negative perceptions of East and Southeast Asians as having behaviors that are a health hazard to Western society.

There are currently organizations across Canada and the U.S. doing more research on the experiences of East and Southeast Asians. For example, American and Canadian organizations have been collecting reports of hate crime or violent incidents from the public since the start of the COVID-19 pandemic (Chinese Canadian National Council Toronto Chapter, n.d.; Fight COVID Racism, n.d.; Jeung et al., n.d.). Reports from these organizations have reported similar results to the present study, such as accusations of bringing COVID-19 over from abroad and having unclean eating habits, and a spillover effect of hate toward Southeast Asians as well (Jeung et al., n.d.; Kong et al., n.d.). It may be important to examine such data further and build interventions, keeping in mind that negative perceptions of Asians may stem from the assumption that they are health hazards to Western society.

## Limitations

Although we have demonstrated an association between belief in the Asian health hazard stereotype and psychological outcomes, our study was not designed to test causality. Future research examining the Asian health hazard stereotype should manipulate exposure to Asian health hazard perceptions and measure subsequent outcomes to demonstrate causality. Mechanisms underlying the Asian health hazard stereotype on psychological well-being should also be measured and tested. A potential mechanism may be identity denial, where the perception that society believes East and Southeast Asians are health hazards, may lead to greater perception of society denying East and Southeast Asians their American or Canadian identity, which can then lead to lower psychological well-being (Cheryan & Monin, 2005). It may also be relevant to collect data from non-East and Southeast Asian minority groups. Not only may the Asian health hazard stereotype increase negative perceptions of East and Southeast Asians, but it may have “spill-over” effects on other minority groups, such as South Asians, who may also experience stress when they believe there is greater discrimination toward minority groups more generally. Finally, we measured the Asian health hazard

stereotype during COVID-19, but we do not believe it is exclusive to the COVID-19 outbreak. Measurement of the Asian health hazard stereotype in the distal future and with non-Asians would be necessary to track any changes over time.

## Conclusion

In closing, our study demonstrates that East and Southeast Asian Americans’ and Canadians’ belief of the Asian health hazard stereotype is negatively associated with their psychological well-being. Although most research on East Asian stereotypes has focused on the model minority stereotype, a seemingly positive representation, our study shows that East and Southeast Asians tend to believe that society also holds this more negative health hazard stereotype. The Asian health hazard stereotype might be more salient because of the current global pandemic, but it is by no means new. Given that the Asian health hazard stereotype appears to be a meaningful construct that is negatively associated with East Asian Americans’ and Canadians’ psychological well-being, we hope that the present research will motivate new investigations of East Asians’ experiences that go beyond their perception as a model minority.

## References

- Ansari, S. (2018, ). “Everybody fits in”: Inside the Canadian cities where minorities are the majority. *The Guardian*. <https://www.theguardian.com/cities/2018/sep/04/canadian-cities-where-minorities-are-the-majority-markham-brampton>
- Chae, D. H., Yip, T., Martz, C. D., Chung, K., Richeson, J. A., Hajat, A., Curtis, D. S., Rogers, L. O., & LaVeist, T. A. (2021). Vicarious racism and vigilance during the COVID-19 pandemic: Mental health implications among Asian and Black Americans. *Public Health Reports*, *136*(4), 508–517. <https://doi.org/10.1177/00333549211018675>
- Chan, G. (2020). The virus of anti-Asian prejudice. *Toronto Star*. <https://www.thestar.com/opinion/contributors/2020/04/13/the-virus-of-anti-asian-prejudice.html>
- Cheah, C. S. L., Wang, C., Ren, H., Zong, X., Cho, H. S., & Xue, X. (2020). COVID-19 racism and mental health in Chinese American families. *Pediatrics*, *146*(5), Article e2020021816. <https://doi.org/10.1542/peds.2020-021816>
- Cheryan, S., & Bodenhausen, G. V. (2000). When positive stereotypes threaten intellectual performance: The psychological hazards of “model minority” status. *Psychological Science*, *11*, 399–402. <https://doi.org/10.1111/1467-9280.00277>
- Cheryan, S., & Monin, B. (2005). “Where are you really from?”: Asian Americans and identity denial. *Journal of Personality and Social Psychology*, *89*(5), 717–730. <https://doi.org/10.1037/0022-3514.89.5.717>
- Chinese Canadian National Council Toronto Chapter. (n.d.). *Chinese Canadian National Council Toronto Chapter*. <https://www.ccncutoronto.ca/>
- Cho, H., Li, W., Cannon, J., Lopez, R., & Song, C. (2020). Testing three explanations for stigmatization of people of Asian descent during COVID-19: Maladaptive coping, biased media use, or racial prejudice? *Ethnicity and Health*. Advance online publication. <https://doi.org/10.1080/13557858.2020.1830035>
- Cudeck, R., & Henly, S. J. (1991). Model selection in covariance structures analysis and the “problem” of sample size: A clarification. *Psychological Bulletin*, *109*(3), 512–519. <https://doi.org/10.1037/0033-2909.109.3.512>
- Czopp, A. M., Kay, A. C., & Cheryan, S. (2015). Positive stereotypes are pervasive and powerful. *Perspectives on Psychological Science*, *10*, 451–463. <https://doi.org/10.1177/1745691615588091>
- Derogatis, L. (2001). *Brief Symptom Inventory 18: Administration, scoring, and procedures manual*. NCS Pearson.

- Devos, T., & Banaji, M. R. (2005). American = White? *Journal of Personality and Social Psychology*, 88, 447–466. <https://doi.org/10.1037/0022-3514.88.3.447>
- Dhanani, L. Y., & Franz, B. (2020). Unexpected public health consequences of the COVID-19 pandemic: A national survey examining anti-Asian attitudes in the USA. *International Journal of Public Health*, 65, 747–754. <https://doi.org/10.1007/s00038-020-01440-0>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71–75. [https://doi.org/10.1207/s15327752jpa4901\\_13](https://doi.org/10.1207/s15327752jpa4901_13)
- Dion, K. L., & Kawakami, K. (1996). Ethnicity and perceived discrimination in Toronto: Another look at the personal/group discrimination discrepancy. *Canadian Journal of Behavioural Science*, 28(3), 203–213. <https://doi.org/10.1037/0008-400X.28.3.203>
- Dunham, J. (2020, May 12). “No excuse”: Bryan Adams apologizes for coronavirus rant slammed as racist. *CTV News*. <https://www.ctvnews.ca/entertainment/no-excuse-bryan-adams-apologizes-for-coronavirus-rant-slammed-as-racist-1.4935422>
- Fight COVID Racism. (n.d.). *Fight COVID-19 racism*. <https://www.covidracism.ca/>
- Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82, 878–902. <https://doi.org/10.1037/0022-3514.82.6.878>
- Franke, G. H., Jaeger, S., Glaesmer, H., Barkmann, C., Petrowski, K., & Braehler, E. (2017). Psychometric analysis of the brief symptom inventory 18 (BSI-18) in a representative German sample. *BMC Medical Research Methodology*, 17, Article 14. <https://doi.org/10.1186/s12874-016-0283-3>
- Gee, G. C., Spencer, M., Chen, J., Yip, T., & Takeuchi, D. T. (2007). The association between self-reported racial discrimination and 12-month DSM-IV mental disorders among Asian Americans nationwide. *Social Science and Medicine*, 64(10), 1984–1996. <https://doi.org/10.1016/j.socscimed.2007.02.013>
- Gupta, A., Szymanski, D. M., & Leong, F. T. L. (2011). The “model minority myth”: Internalized racialism of positive stereotypes as correlates of psychological distress, and attitudes toward help-seeking. *Asian American Journal of Psychology*, 2, 101–114. <https://doi.org/10.1037/a0024183>
- Health Canada. (2003). *Learning from SARS: Renewal of public health in Canada*. <https://www.canada.ca/content/dam/phac-aspc/migration/phac-aspc/publicat/sars-sras/pdf/sars-e.pdf>
- Ho, C., & Jackson, J. W. (2001). Attitudes toward Asian Americans: Theory and measurement. *Journal of Applied Social Psychology*, 31, 1553–1581. <https://doi.org/10.1111/j.1559-1816.2001.tb02742.x>
- Ho, S. (2018, July 12). *Do you eat dog?* Taste. <https://www.tastecooking.com/the-dog-question/>
- Hswen, Y., Xu, X., Hing, A., Hawkins, J. B., Brownstein, J. S., & Gee, G. C. (2021). Association of “# covid19” Versus “# chinesevirus” with Anti-Asian sentiments on Twitter: March 9–23, 2020. *American Journal of Public Health*, 111(5), 956–964. <https://doi.org/10.2105/AJPH.2021.306154>
- Huynh, Q.-L., Devos, T., & Smalarz, L. (2011). Perpetual foreigner in one’s own land: Potential implications for identity and psychological adjustment. *Journal of Social and Clinical Psychology*, 30, 133–162. <https://doi.org/10.1521/jscp.2011.30.2.133>
- Huynh, V. W. (2012). Ethnic microaggressions and the depressive and somatic symptoms of Latino and Asian American adolescents. *Journal of Youth and Adolescence*, 41(7), 831–846. <https://doi.org/10.1007/s10964-012-9756-9>
- Itkowitz, C. (2020, June 23). Trump again uses racially insensitive term to describe coronavirus. *The Washington Post*. [https://www.washingtonpost.com/politics/trump-again-uses-kung-flu-to-describe-coronavirus/2020/06/23/0ab5a8d8-b5a9-11ea-aca5-ebb63d27e1ff\\_story.html](https://www.washingtonpost.com/politics/trump-again-uses-kung-flu-to-describe-coronavirus/2020/06/23/0ab5a8d8-b5a9-11ea-aca5-ebb63d27e1ff_story.html)
- Jeung, R., Yellow Horse, A., Popovic, T., & Lim, R. (n.d.). Stop AAPI hate national report. *Stop AAPI Hate*. <https://stopaapihate.org/wp-content/uploads/2021/05/Stop-AAPI-Hate-Report-National-210316.pdf>
- Kawai, Y. (2005). Stereotyping Asian Americans: The dialectic of the model minority and the yellow peril. *The Howard Journal of Communications*, 16, 109–130. <https://doi.org/10.1080/10646170590948974>
- Kelley, A. (2020). Attacks on Asian Americans skyrocket to 100 per day during coronavirus pandemic. *The Hill*. <https://thehill.com/changing-america/respect-equality/490373-attacks-on-asian-americans-at-about-100-per-day-due-to>
- Kim, H., Schimmack, U., Cheng, C., Webster, G. D., & Spectre, A. (2016). The role of positive self-evaluation on cross-cultural differences in well-being. *Cross-Cultural Research*, 50, 85–99. <https://doi.org/10.1177/1069397115617902>
- King, M. T. (2020). Say no to bat fried rice: Changing the narrative of coronavirus and Chinese food. *Food & Foodways*, 28, 237–249. <https://doi.org/10.1080/07409710.2020.1794182>
- Kong, J., Ip, J., Huang, C., & Lin, K. (n.d.). *A year of racist attacks: Anti-Asian racism across Canada one year into the COVID-19 pandemic*. Fight COVID-19 Racism. <https://drive.google.com/file/d/193CdIC8uq623VR1AzoO3ShfDTEutXQi2/view>
- Kristof, N. (2015, October 10). The Asian advantage. *New York Times*. <https://www.nytimes.com/2015/10/11/opinion/sunday/the-asian-advantage.html>
- Kwong, E. (2020, January 28). I experienced anti-Chinese racism during SARS. But with coronavirus scare, social media makes it so much worse. *Toronto Star*. <https://www.thestar.com/life/opinion/2020/01/28/i-experienced-anti-chinese-racism-during-sars-but-with-coronavirus-scare-social-media-makes-it-so-much-worse.html?rf>
- Lee, R. (1999). *Oriental: Asian Americans in popular culture*. Temple University Press.
- Leung, C. (2008). The yellow peril revisited: The impact of SARS on Chinese and Southeast Asian communities. *Resources for Feminist Research*, 33, 135–149, 155.
- Lin, M. H., Kwan, V. S. Y., Cheung, A., & Fiske, S. T. (2005). Stereotype content model explains prejudice for an envied outgroup: Scale of anti-Asian American Stereotypes. *Personality and Social Psychology Bulletin*, 31, 34–47. <https://doi.org/10.1177/0146167204271320>
- Lou, N. M., Noels, K. A., Kurl, S., Zhang, Y. S., & Leslie, H. (2021). Chinese Canadians’ experiences of the dual pandemics of COVID-19 and racism: Relations with identity, negative emotion, and anti-racism incident reporting. *Canadian Psychology*. Advance online publication. <https://doi.org/10.1037/cap0000305>
- Lu, Y., Alvarez, A. N., & Miller, M. J. (2019). Measurement invariance of the Brief Symptom Inventory-18 (BSI-18) across Asian American ethnic, nativity, and gender groups. *Asian American Journal of Psychology*, 10, 1–10. <https://doi.org/10.1037/aap0000115>
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology*, 71(3), 616–628. <https://doi.org/10.1037/0022-3514.71.3.616>
- Menon, V. (2020, December 9). Google’s top searches of 2020 prove Canadians don’t really live in Canada. *Toronto Star*. <https://www.thestar.com/entertainment/opinion/2020/12/09/googles-top-searches-of-2020-prove-canadians-dont-really-live-in-canada.html>
- Nadal, K. L., Vigilia Escobar, K. M., Prado, G. T., David, E. J. R., & Haynes, K. (2012). Racial microaggressions and the Filipino American experience: Recommendations for counseling and development. *Journal of Multicultural Counseling and Development*, 40(3), 156–173. <https://doi.org/10.1002/j.2161-1912.2012.00015.x>
- Ngo, B., & Lee, S. J. (2007). Complicating the image of model minority success: A review of Southeast Asian American education. *Review of Educational Research*, 77(4), 415–453. <https://doi.org/10.3102/0034654307309918>
- Oishi, S. (2006). The concept of life satisfaction across cultures: An IRT analysis. *Journal of Research in Personality*, 40, 411–423. <https://doi.org/10.1016/j.jrp.2005.02.002>
- Ong, A. D., Cerrada, C., Lee, R. A., & Williams, D. R. (2017). Stigma consciousness, racial microaggressions, and sleep disturbance among

- Asian Americans. *Asian American Journal of Psychology*, 8(1), 72–81. <https://doi.org/10.1037/aap0000062>
- Oyserman, D., & Sakamoto, I. (1997). Being Asian American: Identity, cultural constructs, and stereotype perception. *The Journal of Applied Behavioral Science*, 33, 435–453. <https://doi.org/10.1177/0021886397334002>
- Padgett, J. K., Lou, E., Lalonde, R. N., & Sasaki, J. Y. (2020). Too Asian? The model minority stereotype in the Canadian context. *Asian American Journal of Psychology*, 11(4), 223–232. <https://doi.org/10.1037/aa0000203>
- Panetta, A. (2020, May 6). 3 reasons the COVID-19 death rate is higher in U.S. than Canada. *CBC News*. <https://www.cbc.ca/news/world/covid-19-us-canada-death-rates-1.5553168>
- Pavot, W. & Diener, E. (1993). Review of the Satisfaction With Life Scale. *Psychological Assessment*, 5(2), 164–172. <https://doi.org/10.1037/1040-3590.5.2.164>
- Pew Research Center. (2020). *Many Black and Asian Americans say they have experienced discrimination amid the COVID-19 outbreak*. <https://www.pewsocialtrends.org/2020/07/01/many-black-and-asian-americans-say-they-have-experienced-discrimination-amid-the-covid-19-outbreak/>
- Pinel, E. C. (1999). Stigma consciousness: The psychological legacy of social stereotypes. *Journal of Personality and Social Psychology*, 76(1), 114–128. <https://doi.org/10.1037/0022-3514.76.1.114>
- Rodriguez-Operana, V. C., Mistry, R. S., & Chen, Y. J. (2017). Disentangling the myth: Social relationships and Filipino American adolescents' experiences of the model minority stereotype. *Asian American Journal of Psychology*, 8(1), 56–71. <https://doi.org/10.1037/aap0000071>
- Shen-Berro, J. (2020, March 18). Sen. Cornyn: China to blame for coronavirus, because “people eat bats”. *NBC News*. <https://www.nbcnews.com/news/asian-america/sen-cornyn-china-blame-coronavirus-because-people-eat-bats-n1163431>
- Sismond, C. (2017, March 19). What Canada's “Yellow Peril” teaches us about this migrant moment. *Maclean's*. <https://www.macleans.ca/news/canada/what-canadas-yellow-peril-teaches-us-about-this-migrant-moment/>
- Siy, J. O., & Cheryan, S. (2013). When compliments fail to flatter: American individualism and responses to positive stereotypes. *Journal of Personality and Social Psychology*, 104, 87–102. <https://doi.org/10.1037/a0030183>
- Statistics Canada. (2011). *Immigration and ethnocultural diversity in Canada*. <https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-010-x/99-010-x2011001-eng.cfm#a4>
- Statistics Canada. (2017). *Ethnic and cultural origins of Canadians: Portrait of a rich heritage*. <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016016/98-200-x2016016-eng.cfm>
- Steele, C. M. (1997). A threat in the air. How stereotypes shape intellectual identity and performance. *American Psychologist*, 52(6), 613–629. <https://doi.org/10.1037/0003-066X.52.6.613>
- Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*, 62(4), 271–286. <https://doi.org/10.1037/0003-066X.62.4.271>
- Tang, K., & Kao, D. (2012). Ethnicity, gender, and the education of Cambodian American students in an urban high school. *Journal of Southeast Asian American Education & Advancement*, 7, 1–22. <https://doi.org/10.7771/2153-8999.1045>
- Taylor, D. M., Wright, S. C., Moghaddam, F. M., & Lalonde, R. N. (1990). The personal/group discrimination discrepancy: Perceiving my group, but not myself, to be a target for discrimination. *Personality and Social Psychology Bulletin*, 16(2), 254–262. <https://doi.org/10.1177/0146167290162006>
- Torres-Harding, S. R., Andrade, A. L., Jr., & Romero Diaz, C. E. (2012). The Racial Microaggressions Scale (RMAS): A new scale to measure experiences of racial microaggressions in people of color. *Cultural Diversity and Ethnic Minority Psychology*, 18, 153–164. <https://doi.org/10.1037/a0027658>
- United States Census Bureau. (n.d.). *QuickFacts*. <https://www.census.gov/quickfacts/fact/table/US/PST045219>
- Wang, J., Minervino, C., & Cheryan, S. (2013). Generational differences in vulnerability to identity denial: The role of group identification. *Group Processes and Intergroup Relations*, 16(5), 600–617. <https://doi.org/10.1177/1368430212461963>
- Wilkinson, L. (2020). SARS-1 and COVID-19 in Canada and the US: How racism shaped an epidemic and pandemic. *Canadian Diversity*, 17(3), 55–59. <https://acs-metropolis.ca/wp-content/uploads/2021/11/canadian-diversity-vol17-no3-2020-d3549.pdf>
- Wolf, M. (2020, June 16). How Covid-19 will change the world. *Financial Times*. <https://www.ft.com/content/9b8223bb-c5e4-4c11-944d-94ff5d33a909>
- Wong, Y. J., Owen, J., Tran, K. K., Collins, D. L., & Higgins, C. E. (2012). Asian American male college students' perceptions of people's stereotypes about Asian American men. *Psychology of Men & Masculinity*, 13(1), 75–88. <https://doi.org/10.1037/a0022800>
- Wu, C., Qian, Y., & Wilkes, R. (2021). Anti-Asian discrimination and the Asian-White mental health gap during COVID-19. *Ethnic and Racial Studies*, 44(5), 819–835. <https://doi.org/10.1080/01419870.2020.1851739>
- Wu, C., Wilkes, R., Qian, Y., & Kennedy, E. B. (2020). Acute discrimination and East Asian-white mental health gap during COVID-19 in Canada. *Canadian Diversity*, 17(3), 60–66. <https://doi.org/10.2139/ssrn.3626460>
- Wu, E. D. (2014). *The color of success: Asian Americans and the origins of the model minority*. Princeton University Press. <https://doi.org/10.1515/9781400848874>
- Yeung, J. (2020, January 18). MSG in Chinese food isn't unhealthy—you're just racist, activists say. *CNN*. <https://www.cnn.com/2020/01/18/asia/chinese-restaurant-syndrome-msg-intl-hnk-scli/index.html>
- Yip, T., Gee, G. C., & Takeuchi, D. T. (2008). Racial discrimination and psychological distress: The impact of ethnic identity and age among immigrant and United States-born Asian adults. *Developmental Psychology*, 44(3), 787–800. <https://doi.org/10.1037/0012-1649.44.3.787>
- Zou, L. X., & Cheryan, S. (2017). Two axes of subordination: A new model of racial position. *Journal of Personality and Social Psychology*, 112, 696–717. <https://doi.org/10.1037/pspa0000080>

Received December 30, 2020

Revision received February 21, 2022

Accepted February 23, 2022 ■