Essays on Perceived Racial Discrimination among Asian Americans and the Link between Health and Residential Moves into Different Housing Tenure Among U.S. Older Adults

by

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DEDICATION

I dedicate this work to my family, as well as the many squirrels and trees of Ann Arbor.

"In the Midwest... winter is an exercise in waiting – for relief, for a bird to sing, for the first purple crocus to push up through the snow."

– Michelle Obama. (2018). *Becoming*.

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ABSTRACT

This dissertation examines two important aspects of health inequalities, comprised of three empirical studies about 1) perceived racial discrimination and mental health among Asian Americans and 2) the connection between health and residential moves into different housing tenure among U.S. older adults. The first empirical chapter begins the inquiry about how Asians experience, perceive, and report racial discrimination using the Everyday Discrimination Scale (EDS), a widely used survey measure of discrimination. I conduct cognitive interviews with 10 Korean American young adults to examine the sources of discrepancies found in the EDS in capturing discrimination experiences among Asian Americans. In the second empirical chapter, I build on the findings from the first empirical chapter and conduct a survey experiment. I compare the levels of racial discrimination reported from two groups of participants: one group assigned to the vignettes describing discrimination that Asians experience frequently versus the other group assigned to vignettes based on the EDS. Furthermore, I explore the connection between the level of perceived racial discrimination and the participant's level of depression. I also test whether this association varies by gender. In the last empirical chapter, I examine how health status is connected to residential moves into different housing tenure at older ages. Utilizing data from the 8 waves of the Panel Study of Income Dynamics (PSID) from 2001 to 2015, I conduct discrete-time event history analysis to examine whether the presence of acute/chronic health conditions and poor self-rated health are associated with residential moves into owned versus

non-owned housing. This dissertation concludes by discussing the main findings and implications of the three chapters and considering directions for future research.

CHAPTER I

Introduction

Inequalities in health have been documented for decades, with research showing that health and illness are unequally distributed by socioeconomic status, race, and gender (Phelan and Link 2015; Read and Gorman 2010). Health disparities have been widening in recent years, garnering more attention in policy and research (Ku and Brantley 2020; Hosseinpoor et al. 2018; Bleich et al. 2012). In this context, some studies have sought to explain *drivers* of health inequalities. For example, research shows that racism is "a fundamental cause of adverse health outcomes for racial/ethnic minorities (Williams et al. 2019)," exacerbating health inequalities by race/ethnicity. According to the fundamental cause of disease theory, racism "has a fundamental association with health independent of socioeconomic status (SES)" as it creates inequalities in important aspects of life such as power, prestige, and freedom (Phelan and Link 2015).

Interest about racial discrimination and its effect on minority health increased even more after George Floyd, an African-American man, was killed by a White police officer in 2020 (Barrie 2020). This was coupled with a reckoning about the rise in anti-Asian discrimination since the COVID-19 pandemic as Asians were blamed as the source of the virus (Ruiz 2021). With Asians comprising the fastest-growing racial group in the United States in the recent years (Budiman and Ruiz 2021), it has become ever more important to examine the level of racial discrimination that Asian Americans experience.

The Everyday Discrimination Scale (EDS) (Williams et al. 1997) has served as the most widely used scale to measure perceived racial discrimination in survey research. However, it was developed based on the experiences of African Americans, and studies have cautioned that it may not be readily applied to other racial groups, such as Asian Americans. In the first two empirical chapters of this dissertation, I examine the applicability of the EDS in measuring racial discrimination against Asian Americans using cognitive interviews. Then, I compare the effectiveness of different types of survey vignettes (one based on the EDS and the other based on the findings about discrimination experiences among Asians from the cognitive interviews in Chapter II) in measuring anti-Asian racial discrimination. Finally, I examine the association between experiences of racial discrimination and mental health among Asian Americans.

Research has also shed light on the various *consequences* of health inequalities for individuals. Notably, health status can be especially important at older ages in affecting major decisions in life, such as making residential moves. Residential moves ultimately impact the well-being of older adults, which is especially important to consider in the context of a rapidly aging society and housing precarity among older adults in the U.S. Households with heads aged 65 or more comprised the fastest growing population between 2014-2019, and more than a third of these older households were cost burdened from housing, spending more than a third of their income for housing. The cost burden from housing was especially pronounced for older renters compared to homeowners, with a majority of older renters facing cost burdens (Molinsky 2020). Whereas the effects of health on residential moves and subsequent psychological well-being have been relatively well-studied, research examining what kinds of moves bad health may drive and the financial implications of such moves remain scarce. In the third empirical chapter of this

dissertation, I investigate the connection between health and residential mobility into different housing tenure and its implication for overall well-being of older adults.

Regarding the *drivers* of health inequalities, the first study addresses the applicability of Everyday Discrimination Scale (EDS) in measuring experiences and perceptions of racial discrimination among Asian Americans. While studies using surveys such as the EDS provide great insight into measuring perceived discrimination and its correlates in general, the scale has shown some inconsistencies in how discrimination experiences are measured across different racial groups (Kim et al 2014; Chan et al. 2012). This may lead to biased measurements of racial discrimination and conclusions about the connection between discrimination and mental health among racial minorities.

I conduct cognitive interviews with 10 Korean American young adults to identify which factors in the questionnaire-answering process may lead to these differences in what the EDS captures across different racial groups. The results show that the EDS is limited in capturing the following discrimination experiences among Asian Americans: assumptions about foreignness and xenophobia; ignoring interethnic differences; positive and negative stereotypes. The interviews also demonstrate that gender and length of stay in the U.S. are important factors in shaping experiences and perceptions of racial discrimination among Asians. These findings extend prior literature on measuring racial discrimination against Asian Americans with much-needed qualitative research about the scale used to study racial discrimination. The findings contribute to an improved measurement of discrimination experiences and, ultimately, clearer understanding about the relationship between discrimination and minority health.

The second empirical chapter builds on the findings from the first study and provides insights into how to measure discrimination experiences among Asian Americans more

accurately. The analysis in this chapter also examines how experiences of racial discrimination is associated with depression and whether this association varies by gender. While research shows that racial discrimination leads to adverse mental health outcomes, an understanding about how to measure anti-Asian discrimination experiences more accurately necessitates an investigation into the link between discrimination and mental health among Asians.

I conduct an experiment in which participants are randomly assigned to two different sets of survey vignettes: one based on the findings from the cognitive interviews in the first empirical chapter ("Asian vignettes"), and the other based on the EDS ("EDS vignettes"). Then, I employ t-test and multivariate regression analysis to investigate the connection between discrimination and depression and how this connection varies by gender. The results show that Asian Americans experience racial discrimination similar to the Asian vignettes more frequently than that similar to the EDS vignettes, and that this connection between vignette type and the level of perceived discrimination is stronger for women than men. Furthermore, Asians who report higher levels of perceived racial discrimination are more likely to have higher levels of depression, and this connection is stronger for men than women. These findings indicate that the EDS may be improved by taking into consideration differences in discrimination experiences across racial groups. This study also extends scholarship on intersectionality by demonstrating gender differences in the mental health implications of racial discrimination among Asian Americans.

The third empirical chapter is an investigation into the connection between health and residential mobility among older adults in the U.S. While studies show that bad health may trigger reactive residential moves at older ages (e.g., moving closer to family for health-related assistance), it remains unclear how health may be related to moves into different types of moves.

Notably, health may affect moves into different housing tenure (owned versus non-owned housing), which has enduring implications for psychological and financial well-being of older adults.

I utilize 8 waves of nationally representative survey data from the Panel Study of Income Dynamics (PSID) during 2001-2015 to examine how health status is connected to moves into owned vs. non-owned housing. The main findings from this study show that older adults with acute health conditions or bad health are more likely to make residential moves, especially into non-owned housing. These results demonstrate the complexity found in the residential moves made by older adults, suggesting that diverse motivations and individual characteristics are at play in making moving decisions. This study extends scholarship on older adult health and residential mobility by clarifying how health drives different types of moves, and what implications these moves may have on the well-being of older adults.

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CHAPTER II

Cognitive Interviews of Survey Questions About Perceived Racial Discrimination Among Asian Americans

Introduction

To examine the extent of perceived racial discrimination, studies have utilized surveys as one of the main research methodologies. In addition to measuring the degree of racial discrimination experiences, survey data have also shed light on the correlates of racial discrimination and the linkage between perceived racial discrimination and mental health (Brown 2001; Williams 2016; Yip et al. 2008). The Everyday Discrimination Scale (EDS), developed by Williams et al. (1997), has served as the most widely used survey measure for perceived racial discrimination among racial minorities. However, as is the case with most survey measures of racial discrimination, the EDS was developed to measure the discrimination experiences among Black Americans compared to White Americans.

In this context, scholars have raised concerns about the measurement non-equivalence of the EDS across racial groups in recent years. Equivalent measurement is obtained when the relations between observed scores on the scale and the latent attribute measured by the scale are identical across subpopulations (Drasgow 1984). For example, individuals with equal level of perceived racial discrimination should have the same expected score on the EDS regardless of which racial group they are sampled from. However, studies indicate that the EDS may not be

measuring discrimination in the same way across different racial/ethnic groups, which may lead to biased estimates of perceived discrimination and conclusions about the relationship between discrimination and mental health. For instance, previous research indicates that the discrimination experiences of Asian Americans are underreported using the EDS (Chan et al. 2012).

It is timely to examine the Asian American experiences of racial discrimination and how well they are measured on the EDS for two reasons. First, Asians comprise the fastest-growing racial/ethnic group in the U.S. in the past two decades (Budiman and Ruiz 2021a). Furthermore, there have been reports of an increase in perceived racial discrimination among Asian Americans since the outbreak of the COVID-19 pandemic, as those with Asian ethnic descent were blamed for the spread of the virus. This has been the case especially concerning interpersonal discrimination (Ruiz et al. 2021; Daniller 2021). An accurate measurement of discrimination is the first step before implementing policies to prevent discrimination and to ameliorate adverse health effects of discrimination, which has been documented across the research literature (Domínguez and Embrick 2020)[1].

In this study, I utilize cognitive interviews to examine the extent and causes of the non-equivalence of the Everyday Discrimination Scale (EDS) across racial groups, which may lead to an error in measuring discrimination experiences among Asian American. They comprise a population that is both rapidly increasing and experiencing a rise in discrimination (Ruiz et al. 2021; Budiman and Ruiz 2021). This study asks survey questions from the EDS to a sample of Korean American young adults, followed up by probing questions about their cognitive processes in answering the questionnaire. I focus on highly educated, foreign-born individuals

[1] See Introduction in Chapter III of this dissertation for more details about health consequences of discrimination.

who have lived in the South/Midwest region of the U.S. for more than a year, except in immigrant enclaves. Then, I conduct a qualitative analysis of results from the cognitive interviews to understand how Asian Americans experience racial discrimination, process the questionnaire, and report answers on the EDS. Through this research, I examine the sources of measurement non-equivalence found in the EDS, and contribute to a better understanding about the experiences, perceptions, and reporting of racial discrimination among Asian Americans.

Background

Measurement Non-Equivalence and the Everyday Discrimination Scale

Racial discrimination is defined as unequal treatment of persons or groups based on their race or ethnicity (Pager and Shepherd 2008). The EDS has been widely used in studies that measure the extent of perceived discrimination and its negative health effects across various social groups (Feng et al. 2021). The original version of the scale is comprised of nine items measuring how often respondents experience everyday, interpersonal instances of unfair treatment, such as being treated with less courtesy and people acting as if they think you are dishonest (see Table 2.1 for all items and details). The response options are given on a 6-point scale, ranging from "almost everyday," "at least once a week," "a few times a month," "a few times a year," "less than once a year," to "never." Later versions of the EDS also allowed respondents to identify the main reason for their experiences, with the option to choose multiple reasons if volunteered (Williams 2022) (see Slemon et al. (2021) for a more complete overview).

[See Table 2.1]

It is noteworthy that the scale was originally developed to measure discrimination experienced among Black and White Americans in Williams et al. (1997), and studies have found a lack of equivalence in the scale across racial/ethnic groups. Differently put, the EDS is not "measuring the same concept in the same way across various subgroups" (Davidov et al. 2014), including subgroups defined by race/ethnicity. Most studies testing the measurement equivalence of the EDS have focused on comparing African Americans to other racial/ethnic groups (Feng et al. 2021). They have consistently found a lack of equivalence of the EDS across race/ethnicity in measuring racial discrimination (Harnois et al. 2019, Bastos and Harnois 2020).

Methods to test the measurement equivalence of the EDS often take a generalized latent variable approach, based on the idea that the theoretical concept (i.e., discrimination) is indirectly measured from questionnaire items that reflect this latent trait (Davidov et al. 2014). If the relationships between the concept of discrimination and the survey items are similar across racial groups, it is considered as proof of measurement equivalence (Drasgow and Kanfer 1985, Davidov et al. 2014) (for more details of the testing methods, see Davidov et al. 2014).

Previous research testing the measurement inequivalence of the EDS revealed that measurement inequivalence exists for multiple items in the scale. For instance, Asians and Hispanics have a lower threshold for Item 7 ("act as if they are better than you") compared to non-Hispanic White and Black groups (Jang et al., 2009; Kim et al. 2014). On the other hand, Lewis et al. (2012) found that Japanese women were less likely to endorse Item 3 "poorer service," Item 4 "not smart," Item 5 "afraid of you," and Item 6 "dishonest" compared to African-American women. At more granular levels of analyses, Reeve et al. (2011) showed that for Item 8 ("called names or insulted"), African Americans have a higher expected frequency for

the item when the overall level of discrimination is high. Asian Americans, on the other hand, have a higher expected frequency for the same item when the overall discrimination is reported at low or moderate levels. As will be explained in detail in the next section, these measurement inequivalence may stem from factors such as Asian Americans' sensitivity to discriminatory experiences involving cultural superiority (Item 7), stereotypes about different racial groups (Items 3-6), and distinctive kinds of discrimination experienced by racial groups (Item 8).

The non-equivalence of the EDS hinders the understanding about the true prevalence of racial discrimination across different racial groups. Furthermore, unreliable estimates of perceived racial discrimination from the measure would lead to biased conclusions about the relationship between discrimination and health, considering the well-documented consequences of perceived discrimination on various health outcomes (Pascoe and Richman 2009; Slemon et al. 2021).

Experiences, Interpretations, and Reporting of Racial Discrimination Among Asian Americans

While the significance and consequences of the EDS' measurement non-equivalence are documented in research, its sources remain to be investigated further. As noted in previous research, it is possible that the non-equivalence of the EDS stems from question comprehension, experiences of discrimination, interpretations of discriminatory events, or reporting of discrimination experiences (Bastos and Harnois 2020).

First, *experiences* of racial discrimination among Asian Americans that are distinct from those of other racial/ethnic may necessitate a measure of discrimination that is qualitatively different from the EDS. Asian Americans have been discriminated against through different

historical processes and in different dimensions compared to African Americans, for whom the EDS was developed (Chan et al. 2012) (see the Background section in Chapter III of this dissertation for details about racialization of Asian Americans). Stereotypes about racial/ethnic groups also vary in content. Another noteworthy point in the discrimination experiences among Asian Americans is that they tend to be heavily gendered, as different stereotypical attributions exist for Asian men and women (Mukkamala and Suyemoto 2018). For instance, Kim and Noh (2014) found that Asian men reported more frequent discrimination compared to Asian women on the 10-item version of the EDS, suggesting the possibility that the experiences of Asian women might not be adequately captured on the existing scale.

Next, immigration-related factors may shape not only the *experiences* but also *perceptions* of discrimination and *understanding* of the questionnaire among Asian Americans (Feng et al. 2021). Research demonstrates that Asians report a greater sense of perceived discrimination as they spend more time in the United States (Mossakowski 2003). It is possible that factors such as nativity and acculturation, including English language ability, are associated with a different level of sensitivity to certain items on the EDS questionnaire. For instance, Hispanics and Asians report a higher score on Item 7 ("act as if they are better than you"), especially compared to Black Americans. More recent immigrants may be more sensitive to this item that is sometimes indicative of a sense of cultural superiority by the perpetrator, leading to a higher level of perceived discrimination (Kim et al 2014).

Finally, *reporting* is another area that could lead to measurement non-equivalence in the EDS. Research generally shows that compared to other racial/ethnic groups, Black Americans are more susceptible to the experience of perceived discrimination whereas Asians are less likely to report their experiences of discrimination (Kim et al. 2018). For example, Chan et al. (2012)

note that some of the EDS items such as Item 9 ("threatened or harassed") "may lack sensitivity in capturing how Asians are reporting" discrimination, which is consistent with the overall underreporting of discrimination experiences among Asians documented in other studies.

With regard to the reporting of discrimination experiences, research also suggests that social desirability bias in survey research may lead to a common behavior among Asian populations, the prevention of "loss of face" (Gee et al. 2007a). That is, people tend to understate problems to prevent shaming their families (Zane and Yeh 2002), for example, by underreporting negative experiences such as discrimination (Gee et al. 2007b). In addition, social desirability bias is found to be associated with decreased reports of discrimination among Asian Americans, but not among Black Americans and Latinx (Krieger et al. 2005). Research also shows that other related, negative experiences such as acculturative stress have been underreported among Asian Americans (Xiao et al. 2019).

Considering the different experiences, interpretations, and reporting of discrimination that characterize the Asian American experience, studies have cautioned researchers using the EDS to be careful about items showing measurement inequivalence (Feng et al. 2021). Researchers have also pointed out the need for qualitative analysis to better understand how Asian Americans comprehend and interpret the EDS (Kim et al. 2014), and how Asians reflect on their discrimination experiences and report them on the scale (Chan et al. 2012).[2] Despite the ethnic and socioeconomic heterogeneity found among Asian-American subgroups (Lee 2015), the abovementioned studies demonstrate that these subgroups share similar experiences and perceptions of racial discrimination that are distinct from other racial groups. In this study, I use

[2] See Background section in Chapter III of this dissertation about the limitations in the efforts to develop measures of discrimination experiences among Asians Americans.

cognitive interviews to explore various factors in the questionnaire answering process among Asian Americans that may contribute to the measurement non-equivalence of the EDS.

Cognitive Interviewing

Much of the scholarship on racial discrimination is based on data collected through surveys. However, surveys are not free from measurement error, defined as any deviation of the assigned symbol (e.g., scores on the EDS questionnaire items) from the "true" value (e.g., level of perceived discrimination) (Lavrakas 2008). In this context, there has been methodological research to understand the causes of measurement error in survey research, as reviewed by Brenner (2017). Among these, foundational work by Cannell et al. (1977), Tourangeau et al. (2000), and others have shifted the thinking about measurement error, by changing the concept of survey responding from a simple stimulus–response model to a cognitive process involving four stages: understanding the question, retrieving information, using information to form an answer, and reporting an answer (Brenner 2017).

Since then, cognitive interviewing has been utilized as a helpful method for evaluating, constructing, and pretesting survey questions (Poppe and Petrjánošová 2016; Blair and Brick 2010). It helps identify issues that respondents can encounter at all stages of the question answering process (Willis 2004; Brenner 2017). First, to check if there are any issues respondents have in understanding the question, they are often asked to paraphrase the question or explain what a word or a phrase in the question means. Next, to assess if respondents can retrieve relevant and necessary information to answer the question, respondents may be asked about how accurate they think their answers were. Third, to identify any problems respondents have in using the information to arrive at an answer, they are often asked to "think aloud" while

they prepare an answer to a question. Last, to examine if respondents are "willing and able to fit this information into a response category and report an answer," they are asked to think-aloud retrospectively about how they got to an answer, or to answer follow-up questions (see Brenner 2017 for more details).

There are several studies that have used cognitive interviewing to investigate how well survey questions measure perceived discrimination (Ahmed 2021). Among these, Harnois (2022) conducted the first study that analyzed the frameworks respondents use to interpret and answer the EDS. The research showed that respondents interpret the scale in different ways. Some viewed the scale as a collection of questions about negative interpersonal interactions, while others interpreted it as questions about mistreatment that socially marginalized groups experience. Others, including approximately half of racial/ethnic minority respondents, viewed the EDS as questions about interactions that sustain racism, especially against Black people. However, the small number of Asian sample (n=3) in the study necessitates further investigation into how Asian Americans process the EDS. Another study by Reeve et al. (2011) showed that respondents found Item 3 ("poor service") to be vague and had difficulty understanding and assigning attribution for Item 8 ("called names"). However, the study did not yield significant findings about how answers from respondents across various racial groups may vary, with a small size sample by racial groups (n=6 for each group). Furthermore, respondents had highly varying backgrounds, except for area of residence, which was focused on the Washington D.C. metropolitan area.

Research Questions

Using cognitive interviews, this study aims to contribute to a better understanding about the experiences, perceptions, and reporting of racial discrimination among Asian Americans. I address the following research questions, with each research question corresponding to a different stage of the questionnaire answering process: question understanding (Research Question 1); information retrieval (Research Question 2); information processing (Research Question 3); reporting (Research Question 4).

Research Question 1: How do Asian Americans comprehend and interpret the EDS questionnaire? I explore how cultural and linguistic backgrounds of respondents shape their understanding and interpretation of the survey questions.

Research Question 2: What kinds of everyday, interpersonal discrimination do Asian Americans experience? I examine discrimination experiences that are pronounced for Asian Americans, such as: covert rather than overt forms of discrimination; xenophobia and cultural superiority; gendered discrimination. At the same time, I investigate which items on the EDS are more vs. less relevant for Asian Americans and explore the kinds of discrimination that are not adequately captured on the EDS for Asian Americans.

Research Question 3: How do Asian Americans reflect on their experiences of discrimination while answering the EDS questionnaire? I examine whether and why respondents perceive various discriminatory events to be racially motivated.

Research Question 4: How do Asian Americans report their experiences of discrimination on the EDS questionnaire? In particular, I explore the possibility of underreporting caused by social desirability bias, especially in relation to the cultural tendency to avoid the "loss of face."

Data and Methods

A sample of 10 Asian American respondents were recruited from online ethnic communities, where people sharing similar ethnic backgrounds interact with each other by posting contents/comments and private messaging. The respondents were between the ages of 18-29 representing young adults, an age group experiencing various social settings including schools and workplaces. 5 male respondents and 5 female respondents were recruited in order to compare how gender shapes experiences and perceptions of racial discrimination.

Considering the relatively small sample size of 10, I recruited respondents with a similar background: Korean Americans who have been residing in the U.S. for at least 1 year.

The recruitment also focused on foreign-born respondents for two reasons: 1) to investigate the extent to which racial discrimination is combined with xenophobia; 2) because their experiences are generalizable to the wider Asian American population, which includes US-born Asians. In the general population, 71% of Asian American adults were born in another country (Budiman and Ruiz 2021b); among foreign-born Asians, 59% are US citizens (Budiman 2021). These statistics indicate that is possible to study racialized discrimination against Asian Americans with a foreign-born sample without narrowing it down to discrimination purely based on xenophobia. Pilot interviews also revealed that it is the length of stay in the U.S., rather than the country of birth, that leads to differences in perceived discrimination. Minimum length of stay (one year) in the U.S. corresponds to the answer options about frequency of perceived discrimination shown in the EDS (less than once a year, a few times a year, and so on).

In addition, my recruitment focused on highly educated respondents, which is in line with the general education level of Asian Americans. According to the U.S. Census Bureau (2023), 59.2% of Asian Americans had at least a bachelor's degree, as compared to 41.8% of the non-

Hispanic White population with at least a bachelor's degree in 2022. The respondents were living in Midwestern or Southern regions within the U.S. Korean Americans living in ethnic enclaves were excluded from the sample, as they may have limited interactions with people outside of their ethnic group. Ethnic enclaves are defined as "a geographical area where a particular ethnic group is spatially clustered and socially and economically distinct from the majority group" (Lim et al. 2017). For Korean Americans, such enclaves include metropolitan areas in 7 states with established Korean communities, where more than 63% of Korean immigrants settled in: California, New York, New Jersey, Washington, Texas, Virginia, and Illinois (Rhee 2019; Zong and Batalova, 2015).

Table 2.2 shows more detailed characteristics of respondents. The interviews were conducted in English or Korean (except when shown the EDS questionnaire and answer options in English via online chat), depending on the respondent's preference. Respondents who conducted their interviews in English had a bilingual/native level of English proficiency, while other respondents' English proficiency was lower than that of bilingual/native's. Pseudonyms are used to protect anonymity of respondents.

[See Table 2.2]

I conducted cognitive interviews with each respondent over Zoom in sessions that lasted for an hour in a semi-structured format (see detailed interview script in the Appendix). First, respondents were shown the standard EDS questionnaire for the interviewer to assess their initial answers to the items (see Table 2.1 for details of the questionnaire). They were asked "In your day-to-day life, how often do the following things happen to you?" and then presented with each

of the 9 items and answer options. For those who answered “a few times a year” or more frequently to at least one of the nine items, they were asked a follow-up question to identify the main reason for these experiences. Respondents could choose more than one option given in the questionnaire, if volunteered.

As the next step, respondents were asked for a retrospective “think-aloud” revisiting how they arrived at their answers for each question. To examine how they understood and interpreted the questions, they were asked to give examples of the situation described in each question. If respondents adjusted their answer to any of the questionnaire items during the process, they were asked what made them change their answers.

In addition to going over the EDS questionnaire, respondents were asked to describe any other situations of unfair treatment that they experienced because of their racial background. They were also asked what they thought of as typical experiences of racial discrimination. Respondents with lower levels of English proficiency were asked if they experienced any difficulty/uncertainty in understanding or answering any part of the questionnaire, in case there were any confusion that could affect their answers during the interview. Furthermore, I asked all the respondents if they had any questions about the interview at the end of each session. Lastly, respondents were asked some background questions about their sociodemographic characteristics (such as occupation, education level/background, and income) and their social environments (including neighborhood characteristics and daily interactions with people at school/work).

Given my positionality as a female, bilingual, Korean interviewer, it is possible that respondents conducting their interviews in Korean and female respondents felt more comfortable than they would have if the interviewer did not speak Korean or were a male. The shared racial background also allowed me to understand respondents’ lived experiences on a deeper level,

compared to interviewers from a different racial background. On the other hand, I constantly reminded myself to avoid projecting my own experiences as an interviewer, as Berger (2015) suggests for qualitative research in which researcher shares the experiences of study participants. For instance, if respondents described discriminatory events without specifying why they thought they were discriminated, I asked probing questions about the reasons for discrimination without making assumptions.

Results

Respondents' narratives about their experiences revealed that there are a few aspects of racial discrimination experiences among Asian Americans that are not adequately captured in the EDS (assumptions about foreignness and xenophobia; invalidation of interethnic differences; stereotypes). The interviews also showed that gender and length of stay in the U.S. play an important role in shaping discrimination experiences and perceptions about discrimination among Asian Americans.

Discrimination experiences that were not adequately captured in the EDS

Assumptions about foreignness and xenophobia

The first recurring theme in the Asian American experiences of discrimination involved treatments based on the assumptions of foreignness (regardless of the respondents' actual nationality/citizenship status or English proficiency). These treatments include repeatedly asking where a respondent is from (regardless of their English proficiency), giving a look that suggests that they do not belong, assuming low English proficiency, and so on. Yumi, a female respondent

who has spent 17 years in the U.S., recalled multiple times when men would assume that she is from abroad in a dating context. She would then be asked how long she had been living in the U.S. Sinae, a female respondent with 17 years of residence in the U.S., reported feeling uncomfortable and excluded in predominantly White places.

> It's like, …, I went to predominantly white places and then you feel … very awkward in there. … I know it's like, "What is this person doing? Are they going to buy anything?" … And I just feel like, more, kind of alienated in a way.

Next, respondents reported that many of these treatments seemed to be based on the assumption that their English proficiency is low, *regardless* of the actual level of their spoken English. As a more recent immigrant group, stereotypes that Asian Americans' English is not fluent resulted in reactions that alienated them. Jill, a female respondent with 5 years of residence in the US, described her experience of being treated with contempt because of her actual and/or presumed level of English proficiency.

> For me, it [a typical racial discrimination] is really about the language. In a White-majority society, if a White person asks about something again, they'll answer right away, and they'll answer kindly. But if a person like me [who is Asian] comes and asks, they sometimes pretend like they don't understand. It could be because my pronunciation isn't good, but if they keep asking too many times or get angry or irritated, … [that feels like discrimination].

Even the respondents who were bilingual or fluent in English reported being discriminated against due to the stereotypes about their English proficiency, usually with surprised reactions at the fact that their English is actually fluent. Recalling an instance of being treated with less respect (Item 2), Yumi noted that "They treat you as a foreigner, even though I was pretty much raised here [in the US]. … They'd say 'Your English is amazing.' … I find it very disrespectful."

Discrimination based on invalidation of interethnic differences[3]

Next prominent component of discrimination against Asian Americans that the EDS falls short of capturing is invalidating interethnic differences that exist among Asians. This included instances where respondents were told unsolicited stories involving other Asians and being greeted in another Asian language. Sinae recalled the treatments she received a number of times in ride sharing services as the drivers abruptly told her about their experiences of dating other Asian women.

> I remember feeling very uncomfortable because when I was riding Uber, I would have multiple White men [drivers], just like very old, they're in their fifties or something like that… And they would tell me, "Oh, my fiancé is Asian." or like "My girlfriend's Asian." And then you're like, 'I don't care.'

[3] An alternative wording describing this phenomenon, discrimination based on "ethnic homogenization", was considered. However, as ethnic homogenization is often used interchangeably with ethnic cleansing and cultural homogenization in the literature, I use expressions such as invalidation or ignoring of interethnic differences, which has been utilized in previous studies describing the same phenomenon against Asian Americans (Sue et al, 2007).

Suho, a male respondent with 5 years of residence in the U.S., also reported about his experience of being greeted in another Asian language in a classroom setting.

> Greeting in Chinese when they meet me for the first time. … There was a time when … I went to the first class, a professor greeted me in Chinese out of the blue. There are times when friends who take the classes with me get uncomfortable [with situations like this], so I was flustered. I'd explain right away that I'm not Chinese, but there are servers like that in restaurants sometimes, too. I don't know if their intention is better than what I think, or if it's bad, but there are times they'd do that out of the blue because I'm Asian.

These experiences of ignored interethnic differences impacted respondents' perceptions about discrimination experiences as well. When respondents were asked to identify reasons for their discrimination experiences, it is noteworthy how interconnected race and ancestry/national origins were. Doona, a female respondent who has been living in the U.S. for 2 years, noted, "You can see from my Korean name that I'm not from here. And I look like an Asian girl. … It seems like he [perpetrator of racial discrimination] saw me as a foreigner from my race."

Stereotypes about Asians

The last dimension of discrimination against Asian Americans that were less adequately reflected in the EDS is positive/negative stereotypes about Asians. Common positive stereotypes included expectations that each individual will be smart (especially having high math ability), hardworking, and youthful. For example, Miri, a female respondent who has been living in the

US for 4 years, reported that "People seem to think that Asians are math geniuses or something." Similarly, Joohyuk recalled being told "You must be good at math!" when someone heard that he is of Korean ethnicity. A major negative stereotype experienced, particularly among men, was being "nerdy," which also included assumptions about being less competent in domains that require physical strength.

These findings illustrate aspects of racial discrimination that distinguish the experiences of Asian Americans from other racial groups, especially Black Americans. First, Asian Americans tend to experience differential treatments based on the assumptions of being "perpetual foreigners" and on xenophobic sentiments. Next, discrimination experiences involve assumptions that all Asians are alike, regardless of their ethnic backgrounds. Lastly, both positive and negative stereotypes exist about Asian Americans that distinguish the discrimination experiences of Asians from other minority groups.

Respondent characteristics that shape discrimination experiences and perceptions about discrimination

Gender

Across racial discrimination experiences among Asian Americans, the most pronounced dimension was the gendered nature of their experiences. Not only did gender lead to divergent stereotypes and different kinds of discrimination respondents encountered in a dating context, but also to differences in the frequency and severity of discrimination Asians faced. Furthermore, respondents in both genders were keenly aware of the gendered aspect of their discrimination experiences.

First, male and female respondents recalled different *stereotypes* that they faced, which they thought led to discriminatory behaviors by others. For men, these stereotypes were usually related to assumptions about masculinity and physical strength. Suho described his experiences of being looked down on about his sports skills while playing group sports.

> When I used to play a lot of sports, I experienced it a lot. … I feel like this is included in racial stereotypes [about Asians]. … When I play basketball, it feels like they don't think I would know much or play well since basketball is from the U.S. … based on my race.

On the other hand, stereotypes about female participants involved being looked at as exotic, submissive, immature, and not smart. Yumi explained about her experiences of being stereotyped as submissive, particularly in a dating context.

> There was … somebody who literally said to me, "Oh, I prefer Asian girls." I had those moments, multiple moments with a guy who's like, … "Wow. You have a pretty strong personality compared to the other Asian girls that I dated."

Next, these gendered stereotypes for Asian Americans led to different kinds of discrimination between men and women in a *dating context*. Even though female participants recognized the stereotypes they encountered in dating, they did not think that dating is particularly difficult for them as Asian women in America. Miri described her experience of using online dating apps, which has been relatively smooth for her.

I prefer Bumble [over other online dating apps] because I can message guys first. I get matched with too many guys on Tinder. … When I talked with my ex-boyfriend [about experiences of online dating], … I thought I probably got a lot of matches because I'm an Asian woman.

Similarly, Jill thought that Asian women are neither at an advantage nor disadvantage in the dating market in the U.S.

Jill: The demand, or market, for Asian women definitely exists.
Interviewer: Do you think Asian women are at an advantage in the U.S. dating market or not?
Jill: I wouldn't think so, not particularly.

On the contrary, some male participants reported that dating is more difficult for them due to racial discrimination they faced. All male respondents reported having dated exclusively within their ethnic or racial group. Issac, a male respondent with 9 years of residence in the U.S., reflected on his experiences of discrimination in the dating market and in social interactions with women in the U.S.

It's possible that I'm discriminated against in dating [as an Asian man]. … I look Asian, …, so they don't approach me much [at parties]. Especially girls. … People I usually meet are friends of friends who are guys, and it's not that

> awkward. But at parties, with women, it's a bit [awkward]... It seemed like there were a lot of people who didn't have much to do with Asians. … when I go to gatherings with a lot of White people.

Lastly, in their everyday lives, female respondents reported experiencing more frequent and more severe forms of harassment, insults, and microaggressions compared to male respondents. Yumi described her experience of being physically threatened in the subway.

> I would just say a few times a year because that happens often. Definitely got punched by this stranger on the subway at one point, or almost got punched. … It was a packed subway and he decided to just put his anger on me.

In contrast, Patrick, a male respondent who has lived in the U.S. for 20 years, noted the possibility that he "was *not* being treated with less courtesy or respect compared to women of color" because of his gender, when he compared his experiences with those of his three sisters. On experiences of physical threats or assaults, Issac also reported that because of his gender, he has not been "afraid of being punched or anything [from anti-Asian hate crimes]."

Female respondents were also very aware of the gendered nature of racial discrimination against Asian Americans. For example, Miri reported thinking that a White male peer in her class who is an international student as herself "could be more persuasive because men have an upper hand in the power hierarchy. … People have implicit biases. … Gender and race seem to go hand in hand." Consequently, when identifying main reasons of discrimination, female respondents

often included gender in their response, although they thought race was the most important reason for most of their discrimination experiences.

Length of stay in the U.S.

In answering the EDS about racial discrimination experiences, length of stay in the U.S. played an important role in shaping respondents' experiences, perceptions and interpretations of the experiences. First, respondents with longer duration of residence (at least several years) in the U.S. were more likely to include race as the basis on which they were discriminated against, compared to those with shorter duration of stay in the U.S. Yumi elaborated, "Definitely, race is the big umbrella branch of everything … of the discrimination that I experience." Sinae also mentioned that race and gender "work together" as she described primary reasons for discrimination she experienced.

Furthermore, respondents with longer duration of stay in the U.S. were able to think of instances where they were discriminated against with more ease, compared to respondents with shorter duration of stay. Respondents sometimes tended to draw their answers from particularly traumatic experiences that dated further than a year (which is the time frame given in the EDS answer option). This is likely to have increased the frequency of perceived discrimination reported by those with longer duration of residence in the U.S. For instance, Sinae described her experiences with instances dating back several years ago.

> Interviewer: Could you tell me how you got to your answer [for the question "being called names or insulted"]?

> Sinae: So this is more like an aggregate experience. I don't face this as often, but … [when I was working several years ago] for one year, I would just hear random people just calling me names walking down the hallway. … they would be "chino" or something like that. I don't think I face this as often because I think the setting has changed. But I think depending on the situation, I guess I'm called more names than I'm not.

Finally, respondents with relatively longer duration of residence in the U.S. were more aware of their experiences of racial discrimination in general compared with those with shorter duration of residence, which is in line with insights from previous research. That is, since "access to economic and educational opportunities seems to be determined by how individuals identify with their racial group" in the U.S. (Hall and Carter 2006), immigrants with longer duration of stay tend to experience an increased sense of racial group membership, and race may become more salient in explaining their experiences of discrimination compared to those who have spent less time in the U.S. (Waters 2001; Bashi Bobb and Clarke 2001; Hall and Carter 2006).

These findings show that gender and length of stay in the U.S. are important factors that shape discrimination experiences and perceptions about discrimination among Asian Americans. First, Asian male and female genders are associated with distinct stereotypes and experience different kinds of discrimination. The frequency and severity of perceived discrimination among Asians vary by gender as well. Second, the length of stay in the U.S. affects experiences, perceptions, and interpretations of discrimination among Asian Americans.

Implications of the findings for EDS

The accounts from respondents demonstrate that there are unique experiences of discrimination among Asian Americans that are not adequately captured in the EDS. First, with regard to discrimination related to assumptions about foreignness and xenophobia, the EDS captured some of these experiences as answers to Item 1 ("less courtesy"), Item 2 ("less respect"), and Item 3 ("poorer service"). However, some experiences, including those related to feelings of exclusion or alienation, were not included in EDS. In particular, discrimination experiences related to English proficiency were only partially reported as answers to Item 1 "less courtesy"; Item 4 "not smart"; Item 7 "act as if they are better than you."

Next, the EDS was limited in reflecting experiences related to invalidation of interethnic differences. For example, such discrimination experiences in service settings other than restaurants or stores (which are listed as examples in Item 3 "poorer service") were reported only after the interviewer asked whether respondents received poorer service outside of restaurants or stores. Discrimination experiences in smaller, more private service environments such as ridesharing services were especially likely to remain unreported, even though it was common for female respondents to experience these microaggressions in these settings. In addition, some microaggressions which involve invalidating interethnic differences were reported only after probing about answers to Item 8 "called names or insulted," for which respondents were unsure whether their experiences counted.

Third, the EDS items did not include many of the stereotypes experienced by Asian Americans, especially positive stereotypes. As these stereotypes were sometimes expressed in subtle ways, respondents had difficulty determining whether their experiences of being stereotyped counted as an instance of discrimination. In addition, female participants were able to

report some of their experiences involving being racially stereotyped as answers to Item 7 ("act as if they are better than you"). However, other common *gendered* stereotypes that female participants experienced were not well reflected in the EDS items, sometimes leaving respondents confused whether these experiences can be included as answers.

Apart from experiences of discrimination that were not well reflected in the EDS, some respondent characteristics such as gender and level of English proficiency led to less accurate measurements of discrimination experiences in the EDS for some Asian Americans. First, when identifying main reasons of discrimination, female respondents often included gender in their response, although they thought race was the most important reason for most of their discrimination experiences. This indicates that studies utilizing the EDS would need to be cautious about drawing conclusions about the main reasons of discrimination for Asian American women (for example, by asking a follow-up question about what respondents consider to be the most important reason for discrimination). As for English proficiency, some respondents with lower English proficiency initially had difficulty understanding the meaning of the idiom being "called names" (Item 8). After the interviewer explained the meaning of the term, some of the respondents adjusted their answer to the item to reflect more experiences of verbal abuse.

Finally, the interview findings suggest some other factors that could lead to measurement inequivalence of the EDS in capturing discrimination experiences among Asian Americans. As mentioned in the Background section, a previous study found that a lower threshold for Item 7 "act as if they are better than you" exists among Asian Americans compared to other racial groups. This suggests that as Asians are often treated as "forever foreigners" whose English is less fluent than other groups, they could be more sensitive to the EDS item that indicates a sense of cultural superiority. On the contrary, respondents' answers showed that Item 5 "act afraid of

you" and Item 6 "act as if you're dishonest" were less experienced by Asian Americans, as these were based on stereotypes that do not currently apply to Asian Americans. Similarly, respondents reported that they rarely experience Item 4 "not smart." The stereotype often experienced by Asian Americans that each individual will be smart corroborates this finding, resulting in a lower score for Item 4 among Asians compared to other racial groups.

Discussion and Conclusion

The purpose of this study was to examine the extent and causes of the non-equivalence found in the Everyday Discrimination Scale (EDS) across racial groups, which could lead to a measurement error about discrimination experiences among Asian Americans. To summarize, the findings show that the EDS is limited in capturing some racial discrimination experiences among Asian Americans. Such experiences involve assumptions about foreignness and xenophobia; invalidation of interethnic differences; positive and negative stereotypes. In addition, the interviews showed that gender and length of stay in the U.S. shape experiences and perceptions of discrimination among Asian Americans in important ways.

In short, findings from cognitive interviews are focused on the kinds of discrimination experiences among Asian Americans that are not well captured in the EDS (Research Question 2) and how Asian Americans reflect on discriminatory experiences (Research Question 3). As for the comprehension and interpretation of the EDS questionnaire (Research Question 1), respondents with lower English proficiency did not fully understand the meaning of the idiom in Item 8 ("being called names"), resulting in a lower score for the item. As for Research Question

4, this study did not find evidence for a systematic difference in reporting discrimination on the EDS questionnaire among Asian Americans that could contribute to measurement inequivalence.

These findings extend prior literature about perceived racial discrimination among racial minorities in important ways. This study examines the detailed experiences and perceptions of racial discrimination among Asian Americans using cognitive interviews, complementing quantitative research on the topic. It is a population which remains understudied in discrimination research despite comprising the fastest growing population in recent years and the surge in discrimination against the group since the COVID-19 pandemic. The findings reveal the kinds of discrimination Asians experience for which the EDS may exhibit measurement non-equivalence across racial groups. This study also found other possible sources of measurement error within the EDS, such as perceptions and interpretations about discrimination experiences among Asian Americans. These findings will help not only gauge the extent of discrimination Asian Americans experience but also contribute to an improved understanding about the relationship between racial discrimination and mental health.

Limitations and future directions

Despite the relevance of interview findings about perceived discrimination among Asian Americans as it relates to the EDS, this study is not without its limitations. First, the scale of the interviews could be expanded so that the interview findings can be combined with quantitative insights. For example, future studies would benefit from statistical analysis of the respondent characteristics associated with different experiences, perceptions, and interpretations of racial discrimination among Asian Americans. In addition, this study focused on a rather homogenous sample in terms of sociodemographic characteristics, such as gender, education level, and

income. Recruiting a more sizeable, diverse sample would allow richer analysis of the different discrimination experiences that may exist within the Asian American population.

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Tables

Table 2.1. The EDS 9-Item Measure

First stage	Stem items	1. You are treated with less courtesy than other people are. 2. You are treated with less respect than other people are. 3. You receive poorer service than other people at restaurants or stores. 4. People act as if they think you are not smart. 5. People act as if they are afraid of you. 6. People act as if they think you are dishonest. 7. People act as if they're better than you are. 8. You are called names or insulted. 9. You are threatened or harassed.
	Response categories and scoring	Almost everyday = 5 At least once a week = 4 A few times a month = 3 A few times a year = 2 Less than once a year = 1 Never = 0 Total Possible Score = 0-45
Second stage	Stem suggested response categories	What do you think is the main reason for these experiences? Your ancestry or national origins, your race, your gender, your age, your religion, your height, your weight, some other aspect of your physical appearance, your sexual orientation, and your education or income level

Note. Adapted from "Analysis of the social consequences and value implications of the Everyday Discrimination Scale (EDS): implications for measurement of discrimination in health research" by A. Slemon et al. 2021, *Health Sociology Review*, 31(3):249). Copyright 2021 by the Australian Sociological Association.

Table 2.2. Respondent Characteristics

Name	Gender	Age	Education level	Region	Years lived in the U.S.	Language of interview
Doona	Female	Late 20's	Graduate degree	South	5	Korean
Jill	Female	Late 20's	Graduate degree	Midwest	5	Korean
Sinae	Female	Late 20's	Graduate degree	South	17	English
Yumi	Female	Late 20's	Bachelor's degree	Midwest	17	English
Miri	Female	Late 20's	Graduate degree	Midwest	4	Korean
Joohyuk	Male	Late 20's	Graduate degree	South	2	Korean
Patrick	Male	Late 20's	Graduate degree	Midwest	20	English
Minho	Male	Late 20's	Graduate degree	Midwest	2	Korean
Suho	Male	Mid 20's	High school degree	Midwest	5	Korean
Issac	Male	Early 20's	Bachelor's degree	Midwest	9	Korean

Appendix

Interview procedure and probing questions

Initial questions going over the EDS

- Read aloud each question on the EDS and show response options. Record each answer.
- Retrospective think-aloud revisiting each question (could you walk me through how you got to each answer?).
- How did you interpret the question? Could you give me any examples of the situation described in the question (direct/indirect experience or hypothetical)?
- Were there any other situations of unfair treatment that you experienced because of your racial/ethnic background that was not covered in the questionnaire?
- Did you experience any uncertainty in understanding and answering any part of the questionnaire?
- (If respondents adjusted their answers during probing), what made you change your answer while we were talking through the process?

Other questions about discrimination experiences

- Were there any other situations of unfair treatment that you experienced because of your racial background that was not covered in the questionnaire? What do you think of as a typical racial discrimination experience?
- Did you experience any uncertainty/difficulty in understanding or answering any part of the questionnaire?

Questions about respondent characteristics

- Tell me about what you do during the day. Who do you work with? What's your workplace like?
- Educational background (field of study)
- What do you do outside of work? What activities do you do? How do you like to spend your free time?
- Where do you live? Describe your current neighborhood. How long have you been living there?
- For statistical purposes, I need to know the letter that best describes your pre-tax personal income: under 10k, 10-30k, 30-60k, 60-100k, 100k+...
- How would you describe your sexual orientation?

CHAPTER III

An Examination into Experiences and Perceptions of Racial Discrimination Among Asian Americans Using Survey Vignettes

Introduction

Discrimination against people with Asian ethnic origins in the United States (referred to as "Asians Americans" hereafter) has become more frequent since the outbreak of the COVID-19 pandemic in 2020 (AP-NORC Center for Public Affairs Research. 2021). Asians were frequently blamed for the spread of the virus (Lu 2021), and the pandemic has brought about qualitatively distinct expressions of racism (Chae et al. 2021). Fear of infection led to unprecedented levels of racial animus and xenophobia against people of Asian ethnic descent (Lu and Sheng, 2020). Reports of discriminatory rhetoric and hate crimes have been widely portrayed and documented on news and social media. While the discriminatory rhetoric has focused on East Asians, research shows that anti-Asian discrimination has spilled over to other ethnic minorities with Asian origin (Lu et al. 2021).

Research demonstrates that racial discrimination is a chronic stressor, as exposure to discrimination leads to adverse physical and mental health outcomes such as depression, anxiety, and sleep difficulties (Misra et al., 2020). Studies show that not only the direct experiences of

discrimination but also anticipating discrimination from hearing others' accounts of racism can lead to mental health consequences among minorities (Sawyer et al. 2012; LaVeist et al. 2014). Considering the high prevalence of depressive symptoms among Asian Americans (Chau et al. 2018), it is especially important to examine how racial discrimination affects depression among Asians.

In order to measure discrimination, the Everyday Discrimination Scale (EDS) was developed based on the experiences of Black Americans and has served as the most widely used scale in large population-based studies (Chan et al. 2012). However, Asian Americans' experiences are rooted in different historical and social contexts than those of Black Americans. Taking into consideration factors that might create distinct discrimination experiences such as different immigration history, stereotypes, political climate, and cultural differences would enrich the survey measure to reflect Asian Americans' experiences of discrimination more accurately.

An experiment involving survey vignettes can provide valuable insights into how to measure experiences of discrimination among Asian Americans more accurately. Using short descriptions of situations, survey vignettes combine the advantages of experiments (internal validity) with those of surveys (external validity) (Sniderman and Grob 1996). Randomly assigning respondents to vignettes with varied descriptions of situations provide "internal validity strengths of the fully randomized, multifaceted experiments (Sniderman and Grob 1996)"; such experimental features of vignettes are complemented by the representativeness of surveys, which provide external validity.

Vignettes are especially useful to study topics that are sensitive and prone to induce social desirability bias such as perceived racial discrimination, as the method asks respondents

questions about hypothetical scenarios in vignettes rather than direct experiences of respondents (Hanson 2006). In addition, vignettes can complement standard survey questions by improving their clarity and offering more details. Research shows that the vagueness and lack of details often associated with standard survey questions may lead to unreliable and biased answers (Hanson 2006; Alexander and Becker 1978). This can be especially problematic for Asian Americans with a relatively recent history of immigration and varying cultural and linguistic backgrounds.

The present study uses survey vignettes to better understand Asian Americans' experiences and perceptions of racial discrimination. One of the two series of vignettes were randomly assigned to Asian American study participants to determine whether the "Asian vignettes" (vignettes informed by cognitive interviews from Chapter II of this dissertation and prior research on Asian Americans' discrimination experiences) are more effective at capturing their experiences compared to the "EDS vignettes" (vignettes based on the EDS items). This study also examines the connection between the experience of discrimination and reports of depression, and how this connection varies by gender.

Background

Development of perceived racial discrimination measures

A number of survey instruments have been designed to capture self-reports of discrimination, as reviewed by Slemon et al. (2021). Examples of such instruments include the Everyday Discrimination Scale (Williams et al. 1997), the Experiences of Discrimination scale (Krieger et al. 2005), and the Jackson Heart Study Discrimination Instrument (Sims et al. 2009).

Among these instruments, the Everyday Discrimination Scale (EDS) has been most widely used to measure perceived discrimination in large population-based studies (Chan et al. 2012).

The EDS was developed by Williams and his colleagues (1997) for the Detroit Area Study (1995). The authors investigated the role that perceived discrimination plays in explaining health inequalities between Black and White Americans. The EDS was developed specifically within the context of racial health disparities, although the scale is designed to capture other forms of discrimination as well (Slemon et al. 2021). Following its development, the EDS has been used in numerous subsequent studies on perceived discrimination and mental health (Kessler et al. 1999; Schulz et al. 2000; Williams et al. 1999).

The root of the EDS can be traced back to Essed's theory of everyday racism (1991), which was based on in-depth interviews of Black women in the United States and the Netherlands (Slemon et al. 2021). Essed's 55 interview participants were comprised of a rather narrow population: 53 were aged 20-45, and from a few large cities in California and the Netherlands. From the interviews, Essed identified and categorized examples of racism to extract main forms of racism Black women encounter on a daily basis. Following how Essed "situated racism … within the 'systematic, recurrent, familiar practices' of everyday life (p. 3) – daily interactions between individuals in society (Slemon et al. 2021)," the EDS aimed at capturing discrimination that people experience in their daily lives (Williams et al. 1997).

Measuring perceived discrimination among Asian Americans

While the EDS has been widely used within the literature to measure perceived discrimination, previous large-scale research on discrimination using this scale has focused on African American samples (Chan et al. 2012). Most psychometric studies which examine

measurement properties of the EDS have been conducted with Black American respondents as well (Clark et al. 2004; Taylor et al. 2004; Slemon et al. 2021). Thus, studies caution that it is not possible to apply the instrument to measure discrimination across all populations without revising items (Berenbon 2020). For example, without item revisions, the possibility of a severe floor effect whereby there are some lower limit to the data values on the EDS is especially worrisome; the EDS may not reflect more covert forms of discrimination (Slemon et al. 2021). Furthermore, stressful experiences such as racial discrimination are "influenced by many factors, and thus should be understood in cultural, historical, and social contexts" surrounding Asian Americans (Kim et al. 2014). In addition, how people perceive and interpret discriminatory events is influenced by external factors such as political climate and available resources (Chan et al. 2012).

In this context, there have been a number of efforts in the literature to develop measures of discrimination that are particularly suited for Asian Americans. For example, a gendered racial microaggression scale for Asian American women (Keum et al. 2018) and gendered racism scales for Asian American men (Liu et al. 2018) were developed in recent years. Across both genders, an internalized racism scale (Choi et al. 2017) and racism-related stress inventory were developed as well (Liang 2004). However, these measures focus on one gender or specific areas within racism rather than racial discrimination in general (such as microaggressions and internalized racism), or encompass overall racism rather than capturing perceived, interpersonal aspects of racial discrimination. Given these limitations, the present study builds on the EDS and examines distinctive aspects of racial discrimination experienced among Asian Americans using a survey experiment.

Theoretical perspectives on discrimination experiences of Asian Americans

Racialization of Black Americans

Sociological theories about racialization and discrimination offer valuable insights into how racial and ethnic groups may experience discrimination differently. Discrimination against Black Americans, on which the EDS was based, can be explained by the concept of Blackness and colorism. According to the "one-drop rule," individuals who have at least one drop of Black blood in their ancestry have been categorized as Black in America (Davis 1991). Other conceptions of Blackness involved associating being Black with certain "skin color, physical features, and temperament in order to deem 'Blacks' inferior to Whites (Nunally 2010)," resulting in a racial stratification system (Omi and Winant 1994). Research has also shed light on a phenomenon called colorism, in which "lighter skinned people … benefit from better social outcomes than their darker skinned counterparts (Reece 2019)." Among Black Americans, skin tone is significant in predicting multiple forms of perceived discrimination net of demographic controls (Monk 2015), which help explain the social inequalities created along different skin tones.

These theories illuminate the basis on which discrimination against Black Americans has been justified in the U.S. However, as Lee and Bean (2004) argue, the relevance of the Black vs. White divide in discussions of racial boundaries needs to be reconsidered, as the arrival of new immigrants such as Asian Americans have resulted in America's "changing color lines." Indeed, racial discrimination against Asian Americans has historical roots, has manifested in racist tropes, and resulted in consequences that are distinct from the discrimination experiences of Black Americans.

Racialization of Asian Americans

The origins of racial discrimination against Asian Americans can be traced back to what Said (1978) called Orientalism. It is a line of thought in which Eastern societies are represented as an inferior "Orient," characterized by exoticism, irrationality and disorderliness. Orientals, as the "Other," represent a constant threat to the well-being of Westerners (Li and Nicholson Jr 2020). In contrast, Western societies are deemed superior with their rationality and orderliness, thus making it "the White man's burden" to civilize the Asian natives (Kipling and Wise 1899). Immigrants from Eastern countries, in turn, are seen as perpetual foreigners who remain a threat to the U.S., regardless of how long they reside in the U.S. (Smith 2016).

As "perpetual foreigners" in America, Asian Americans are cast as either "yellow peril" or a "model minority." First, yellow peril is a more conspicuous racist trope reflecting a fear about Asian migration to the U.S. in the late 19th and early 20th centuries (Laffey 2000). "Overlapped with the image of East Asia's large population size and the emergence of an Asian imperial power," Asian immigrants evoked a sense of threat among White Americans about being outnumbered and outpowered by the Asian race (Kawai 2005).

Next, a seemingly very different stereotype about Asian Americans gained traction in the U.S. beginning in the 1960s. According to the "model minority" trope, Asians are seen as high achieving in socioeconomic status and as well-integrated into the American society (Sue et al., 1995). However, they are model *minorities* at best (Lee and Kye, 2016), ostracized in civic life and viewed unassimilable with Whites as opposed to being seen as "insiders" (Xu and Lee 2017). Some scholars also criticize the model minority myth as an extension of Orientalism (Chou, 2008), given that the achievements of Asian Americans are attributed to Asian culture (Zhou, 2004).

Taken together, the dialectic between yellow peril and model minority tropes have provided a rationale for racializing and marginalizing those with an Asian ethnic background (Kawai 2005). Asian Americans have been treated as forever foreigners, excluded from full integration into the White majority American society (Devos and Banaji 2005). These attitudes have been expressed in the form of microaggressions and more blatant forms of racial discrimination such as harassment, hostility, and violence (Nadal 2011; Chou and Feagin 2015).

Intersectionality: Gendered racial discrimination against Asian Americans

Finally, insights from intersectionality theory contribute to the understanding about the gendered experiences of racial discrimination among Asian Americans. Intersectionality as a conceptual framework examines "the interaction of multiple identities and experiences of exclusion and subordination (Davis 2008)," such as the interactions of race and gender (Crenshaw 2013). It sheds light on how social groups may experience a given phenomenon, such as racial discrimination, in different ways (Sangalan and Gee 2015).

While there is little empirical research on gender differences in racial discrimination experiences, extant findings show that racial minority men report higher rates of racial discrimination experiences than their female counterparts (Polanco-Roman et al. 2019; Pérez et al. 2008). In particular, a study by Kim and Noh (2014) found that Asian men reported higher rates of discrimination than Asian women on the EDS. However, findings from cognitive interviews in Chapter II of this dissertation pose a question about the extent to which the gender differences in perceived racial discrimination among Asians stem from actual discrimination experiences versus the EDS scale falling short of capturing discrimination experiences among women.

Intersectionality may also contribute to the understanding about the gendered/sexualized aspect of racial discrimination against Asian Americans. In the imagery rooted in Orientalism, Asian American women are stereotyped as "demure, sultry, mysterious, and submissive (Azhar et al. 2021)." On the other hand, Asian men are feminized (Chen 1996), leading them to be marginalized in the dating context. Studies show that Asian men "are the least likely group to be in a romantic relationship (Balistreri et al. 2015)" and are excluded at a higher degree than Asian women in the online dating context (Robnett and Feliciano 2011; Lee and Kye 2016).

Need for an improved measurement of racial discrimination against Asian Americans

Together, the divergent histories and characteristics of racial discrimination against Asian Americans vs. Black Americans support the need for a change in the measurement of perceived discrimination among Asian Americans. In line with the aforementioned theoretical perspectives, cognitive interviews from the previous chapter of this dissertation revealed a few main facets of discrimination that Asian Americans experience on a regular basis. First, gendered/sexualized racism involved different stereotypes faced by Asian men versus Asian women, leading to gendered discrimination in a dating context. Positive stereotypes, such as high math ability, comprise another main aspect of discrimination, based on the model minority trope. Lastly, assumptions about foreignness often led to microaggressions related to English proficiency and to ignoring interethnic differences, in which Asian Americans were uniformly treated as "foreign."

Perceived racial discrimination and depressive symptoms

The psychological toll from experiences of racial discrimination is well-documented in the literature, and racial discrimination is known to be a chronic stressor that deteriorates the mental health of individuals (Misra et al., 2020; Brondolo et al. 2009). Studies show that exposure to discrimination leads to adverse mental health outcomes such as depression and anxiety among Asian populations (Gee et al. 2009; Chau et al. 2018; Hahm et al. 2010). In particular, a recent study by Chau et al. (2018) found that depressive symptoms are highly prevalent among Asians (one third to one fifth depending on ethnicity) and that everyday experiences of discrimination are more common and more likely to be associated with depression than major experiences of discrimination (i.e., life events such as not being hired for a job due to race or ethnicity).

As is the case with the distinctive *experiences* of racial discrimination by social groups, intersectionality theory suggests that social groups may have different levels of *vulnerability* or *resilience* to the experiences of discrimination (Sangalan and Gee 2015). Interaction of multiple identities such as race and gender may lead to different health implications of discrimination experiences among Asians (Yip et al. 2019). While studies on gender differences in the effects of racial discrimination remain scarce despite the theoretical interest, extant studies show that the relationship between racial discrimination and mental health may differ for men and women (Himmelstein et al. 2015; Polanco-Roman et al. 2019). According to a recent meta-analytic study by Carter et al. (2017), men were more affected by racial discrimination than women; in particular, Asian men are more likely to experience adverse mental health outcomes from racial discrimination than their female counterparts. On the other hand, a study on Asian-Americans showed that women have a lower threshold of discrimination in affecting mental health than men (Hahm et al. 2010). Yet another study focused on Asian Americans did not find significant

gender differences in the relationship between racial discrimination and mental health (Nadal et al. 2015).

Research also provides some explanations about why there may be gender differences in how racial discrimination impacts mental health. One explanation lies in coping strategies, in which men tend to "engage more with perpetrators of racism/ethnic discrimination and respond in more combative forms to assert power (Assari et al. 2017)." In comparison, women are more likely to seek social support in their networks to cope with discrimination. As a result, men may remain more vulnerable to racial discrimination, whereas coping strategies women employ may buffer negative effects of discrimination (Liang et al. 2007; Assari et al. 2017). Another explanation is that racial discrimination hampers men's ability to function as providers, which results in higher vulnerability to racial discrimination among men (Carter et al. 2015). In addition, as Asian men "occupy dual positions of privilege and marginalization as men and racial minority, respectively (Liu and Wong 2016)," it is important to consider gender in examining mental health implications of racial discrimination (Arañez Litam et al. 2021).

Current Study

Usage of survey vignettes

An experimental study using survey vignettes may be a useful way to examine what kinds of discrimination Asian Americans experience and how they perceive and interpret these experiences. Vignette studies utilize "short descriptions of situations or persons (vignettes) … to elicit … judgments about these scenarios (Atzmüller and Steiner 2010)." Survey vignettes have been used for and are particularly well-suited for studying sensitive topics such as race attitudes,

discriminatory attitudes, and affirmative action (Sniderman and Grob 1996; Krysan et al. 2009; Lee and Craig-Henderson 2005; Hanson 2014).

Perceived discrimination is another area in which a number of studies have benefited from utilizing survey vignettes (Fuegen and Biernat 2000; Star et al. 2015). As for racial discrimination, Hanson (2006) used vignettes to examine how young African American women perceive race and gender discrimination. Utilizing survey vignettes, studies also investigated perceptions of subtle racial discrimination in the workplace (Offermann et al. 2014), perceptions of racial inequality (Maxwell 2015), and perception of racial prejudice among African American university students (Gilbert 1998). While previous studies have focused on studying the experiences of African Americans with regard to perceived racial discrimination and related topics, survey vignettes may be particularly useful for examining the perceived racial discrimination experiences of understudied populations such as Asian Americans.

Research Questions

Using an experimental design with survey vignettes and building on the findings from the cognitive interviews in Chapter II of this dissertation, the present study addresses the following research questions.

Research Question 1: Do Asian Americans experience racial discrimination similar to that portrayed in the Asian vignettes more frequently than racial discrimination similar to the EDS vignettes?

I hypothesize that Asian Americans experience racial discrimination similar to the Asian vignettes more frequently than racial discrimination similar to the EDS vignettes, as the Asian vignettes capture experiences that are more relevant for Asian Americans.

Research Question 2: Does the association between vignette type and levels of perceived racial discrimination (i.e., participants assigned to Asian vignettes reporting higher level of perceived discrimination) differ by gender among Asian Americans?

I hypothesize that this association is stronger for women than men. This is because the EDS (and the EDS-based vignettes) is more limited in capturing the types of discrimination that Asian women tend to experience.

Research Question 3: Are Asian Americans who experience more racial discrimination more likely to have higher levels of depression? Does this vary by vignette type?

I hypothesize that Asian Americans who experience more racial discrimination are likely to have higher levels of depression, regardless of the vignette type.

Research Question 4: Does the association between the level of perceived racial discrimination and the level of depression differ by gender among Asian Americans?

I hypothesize that the association between the level of perceived racial discrimination and the level of depression is stronger for Asian men than Asian women. This may stem from coping strategies for racial discrimination and implications of discrimination that differ by gender.

Data and Methods

Data

To examine experiences, perceptions, and evaluations of discrimination experiences, I designed and fielded an online survey experiment on Qualtrics, an online survey platform. A sample of 730 participants were recruited who identified themselves as Asian Americans. Other sampling criteria (between the ages of 18 to 29; residing in the U.S. for at least a year) remained

the same as for the cognitive interviews in Chapter II (see Data and Methods section in Chapter II for details). I focused on young adults since they experience various social settings including schools and workplaces, and thus, could draw from diverse experiences when reflecting on the vignettes. Quota sampling method was utilized to recruit a sample that is representative of Asian Americans who are 18-29 years old in the United States. Based on one-year estimates in the 2019 Public Use Microdata Sample (PUMS) of the American Community Survey, gender, education level, and household income quotas were set as the following: 49% female and 49% male; 57% less than associate level of education and 43% associate level of education and above; 26% with less than household income of $50,000, 20% with $50,000-$84,999, 27% with $85,000-$149,99, and 27% with $150,000 or above. Table 3.1 displays the differences in the characteristics between the sampling quota and the actual sample recruited for this study under logistical constraints. There was minimal difference in the gender proportions of the recruited sample and the sampling quota[4]. There were more participants with higher level of education (associates and above) in the recruited sample (59%) compared to the sampling quota (43%). In addition, there were more participants in the lower income categories (32% and 27% for less than $50,000 and $50,000-$84,999, respectively) in the recruited sample compared to the sampling quota (26% and 20%, respectively), and less participants in the higher income categories ($85,000-$149,999 and $150,000 or more). The participants were recruited by Qualtrics, from various sources including websites, email lists, and social media.

[See Table 3.1]

[4] Sampling weights were not used as this study focuses on internal validity rather than external validity in the context of a survey experiment.

Methods

Survey experiment using vignettes

The study used a between-subjects experiment design in which participants were randomly assigned into two groups (364 participants into Group A and 367 participants into Group B). For each group, a series of four different vignettes depicting discriminatory events were presented in a randomized order. For Group A (referred to as the "Asian vignette group" hereafter), the vignettes depicted discriminatory events that are based on findings from the cognitive interviews of Asian Americans in Chapter II of this dissertation. For one of these vignettes which ask about discrimination experiences in a dating context, male and female participants were directed to a different subset of vignettes (based on findings about gendered discrimination in a dating context). For Group B (referred to as the "EDS vignette group" hereafter), the vignettes presented were based on items measured in the EDS, particularly ones that may be less relevant for Asian Americans according to the findings from cognitive interviews in Chapter II and previous studies[5]. I worded the vignettes based on the findings from the cognitive interviews and previous research; then I refined the wording with expert consultations and pretests with Asian American participants. Below is a list of vignettes for the Asian vignette group and the EDS vignette group.

[5] Such items were selected in order to examine which types of racial discrimination depicted in the EDS are less relevant for Asian Americans, ultimately contributing to improving scales of racial discrimination in measuring the experiences of Asian Americans.

Asian vignette group (A-1. microaggressions related to English proficiency; A-2. stereotype about math ability; A-3. treatment as a perpetual foreigner and mistakenly assuming they are from a different Asian ethnic group; A-4. gendered stereotypes/discrimination in dating):

A-1. You are visiting the apartment management office to talk about an issue with your apartment unit. During your conversation with a non-Asian in the management office, the person speaks very slowly, as if you don't understand, in an annoyed tone.

A-2. Imagine you are working at a company. At work, you are in a team meeting with non-Asian colleagues. They usually work on similar tasks as you do. There is a discussion about the budget. A colleague asks you, "What do you think? You must be good at numbers."

A-3. You go into a store for the first time in a neighborhood where there are few Asian people. A non-Asian greeter, whom you have never met before, says "Hi" to you in an Asian language that you do not speak.

A-4. Respondents are directed to different options based on their gender that had been previously selected in the questionnaire.

Men: Suppose you are single. You have been looking for people to date, but it has been generally difficult finding non-Asian people in offline settings or on dating apps. You feel like you are treated differently by them because of your racial or ethnic background.

Women: 1) Non-Asian people act as if they think you're submissive in a dating context; 2) Non-Asian people act as if they think you're exotic in a dating context.

EDS vignette group (B-1. "treat you as if you are not smart"; B-2. "afraid of you"'; B-3. "treat you as if you are dishonest"; B-4 "less courtesy"):

B-1: Imagine you're working at a company. At work, you have been working on a team project with non-Asian colleagues. There is an issue with the project, and you suggest some ideas about how to solve it. After you share your ideas with your colleagues, some of them suggest that you are not smart enough to solve the issue at hand.

B-2: When you walk down a street, non-Asian strangers avoid walking past you closely. They have a frightened look on their face as they walk past you.

B-3: You go to a doctor's office for your first doctor's appointment and fill out a medical history form truthfully. After reading your form, a non-Asian doctor whom you have an appointment with gives you a quizzical stare. The doctor asks you, "Are you sure you don't want to edit any of your answers?"

B-4: You go into an expensive clothing store in your neighborhood for the first time. While shopping at the store, a non-Asian salesperson directs you toward the items on sale. When you attempt to make a purchase, the salesperson ignores you as if you are not a serious customer or as if you do not have enough money.

After showing each vignette to the participants, I asked how often experiences similar to each scenario in the vignette happen to participants. Then, I asked them to identify reason(s) for experiences similar to each scenario, except for those who answered that they never have such experiences. Participants were given the option to select multiple reasons as answers to this question, among the following answer options: your race or ancestry, your gender, your age, your religion, your sexual orientation, your education or income level, your physical disability, and other. The full survey questionnaire can be found in the Appendix.

Outcome variable

The level of perceived racial discrimination is derived from measures about how frequently participants experience situations similar to the ones described in four vignettes. The frequency pertaining to each vignette is measured on a 5-point Likert scale ranging from 1 to 5 (always, often, sometimes, rarely, and never), reverse-coded, and summed up to create a composite measure of the level of perceived discrimination. To measure the extent of perceived racial discrimination, the responses for which participants included "your race or ancestry" as a reason for discrimination are counted towards the sum, while the frequency for vignettes in which "your race or ancestry" is not included as a reason is coded as 1 ("never").

Explanatory variables

The level of depression is used as both an outcome variable (Research Questions 1 and 2) and an explanatory variable (Research Questions 3 and 4). It is measured with the five-item version of the Center for Epidemiologic Studies Depression (CES-D) scale (Perreira et al. 2005). Scores for negative indicators (could not shake off the blues, felt depressed, felt sad) were measured on a 4-point Likert scale ranging 0 to 3 (rarely or none of the time, some of the time, a lot of the time, and most or all of the time, respectively) and summed up. Then, scores for positive indicators (was happy and enjoyed life, which were measured on the same scale) were subtracted from the sum of negative indicators to derive the total level of depression ranging from -6 to 9. Next explanatory variable is the assigned vignette type, which is coded as either Asian vignettes or EDS vignettes. Finally, gender is coded as either male or female.

Control variables

The models also include control variables informed by previous studies and theories on perceived racial discrimination among Asian Americans. First, measures of sociodemographic characteristics such as age, household income, education level, employment status, cohabitation status, and marital status are included in these models as statistical controls. Age is a continuous variable, and household income is divided into less than $50,000 (reference category), $50,000 to $84,999, $85,000 to $149,999, and $150,000 or more. Education level is divided into "less than associate level" (reference category) and "associate level and above." Employment status is coded as working (reference category), unemployed ("only temporarily laid off, sick leave, or maternity leave" and "looking for work, unemployed"), student, and other ("retired," "permanently or temporarily disabled," "keeping house," and "other"). Cohabitation status is a binary indicator about whether one is living with a romantic partner. Marital status is a binary indicator of whether one is currently married or not.

I also control for variables that are more directly related to immigration and perceived racial discrimination among Asian Americans. Detailed race is coded as East Asian, Southeast Asian, South Asian, and other Asian racial classification, which includes more than one race within the Asian group. Nativity is a binary indicator about whether one was born in the U.S., in which respondents whose duration of stay in the U.S. is the same as their age are coded as US-born. Duration of stay in the U.S. measures the total number of years lived in the U.S. throughout the respondent's life. Lower level of English proficiency is a binary indicator about whether the respondent speaks English below the "very well" level (i.e., "well," "not well," or "not at all") in the 4-point Likert scale.

Analytic strategy

In order to analyze the results pertaining to Research Question 1, I first utilize t-tests to examine whether the differences in the total score of perceived discrimination between the Asian vignette group and the EDS vignette group are statistically significant. Next, I conduct multivariate regression analyses to examine whether participants experience racial discrimination similar to the Asian vignettes more frequently than discrimination similar to the EDS vignettes, controlling for other factors. The regression analyses include a model with an interaction term between gender and vignette type to examine whether Asian women experience racial discrimination similar to each set of vignettes more frequently than men (Research Question 2).

I conduct further regression analyses to investigate the following research questions. First, a regression model with an interaction term between vignette type and total vignette score examines whether those with higher levels of racial discrimination are more likely to experience higher levels of depression, regardless of the vignette type (Research Question 3). Next, a regression model with an interaction term between gender and total vignette score examines whether the association between the level of perceived racial discrimination and the level of depression differ by gender (Research Question 4).

Results

Table 3.2 presents the descriptive statistics of the overall sample and by vignette condition. It also includes results of significance tests to test differences in means (t-test) or in expected frequencies (chi-squared test) between the sample in each vignette condition. Overall, the sub-samples that were randomly assigned to the vignette conditions show similar characteristics. The only statistically significant difference between the sub-samples is found in

income. Participants in the EDS vignette condition have a higher proportion of the lowest income group (less than $50,000) and lower proportions of the higher income groups ($85,000-$149,999 and $150,000 or more) compared to participants in the Asian vignette condition. The overall sample is 50.6% female, with a mean age of 23.1. 58.9% of participants have an associate level of education or above. About half of the participants are working, and 36% are students. 25.2% are living with a romantic partner and 11.7% are currently married. 35.5% of participants identify themselves as East Asian, followed by 29.7% Southeast Asians, 27.1% South Asians, and 7.7% belonging to yet another Asian racial category or to more than one race within the wider Asian category. 54.4% are born in the U.S., and the mean duration of stay in the U.S. is 17.9 years. 24.5% of participants have a lower level of English proficiency (below "very well").

[See Table 3.2]

Table 3.3 shows the level of perceived racial discrimination on each vignette and by vignette condition. Overall, participants report a higher level of racial discrimination on each of the Asian vignettes than on the EDS vignettes. Vignettes for which participants report especially high scores (close to 3 on the 5-point scale) pertain to microaggressions related to English proficiency and treatment as a perpetual foreigner with ignored interethnic differences. In contrast, participants experienced being "treated as if you are dishonest" with the lowest frequency (1.6 on the 5-point scale).

Table 3.3 also presents the result of independent samples t-test comparing the level of perceived racial discrimination between the Asian vignette group and the EDS vignette group. Asian Americans experience racial discrimination similar to the Asian vignettes more frequently

than racial discrimination similar to the EDS vignettes. The mean score for the level of racial discrimination similar to the Asian vignettes is 10.1 (SD = 0.2), whereas the mean score for the level of racial discrimination similar to the EDS vignettes is 7.2 (SD = 0.2); the difference in means is significant at the p<.001 level.

[See Table 3.3]

Table 3.4 presents findings from the OLS regression model of level of perceived racial discrimination. In Model 1, vignette condition and gender are included as independent variables, and an interaction term between the two is added in Model 2. In Model 1, those assigned to the Asian vignette condition score 2.89 points higher on the perceived discrimination scale (p<.001) compared to those assigned to the EDS vignette condition, controlling for other factors. Women score 0.40 points higher on the perceived discrimination scale (marginally significant) compared to men. Unemployed participants have a 0.99 point lower level of perceived discrimination (p<.05) compared to those who are working.

In Model 2, men assigned to the Asian vignette condition have a perceived racial discrimination score that is 2.35 points higher (p<.001) compared to men assigned to the EDS vignette condition. Among women, those assigned to the Asian vignette condition have a perceived discrimination score that is 3.41 (= 2.35 + 1.06) points higher than those assigned to the EDS vignette condition (where the interaction coefficient between the vignette condition and gender = 1.06, p<.05). These marginal effects of the Asian vignette condition on the level of perceived racial discrimination by gender are illustrated in Figure 3.1. Similar to the results from

Model 1, unemployed participants have 1.02 points lower level of perceived discrimination ($p<.05$) compared to those who are working.

Although the correlation between socioeconomic status (SES) and levels of perceived discrimination is not statistically significant in these models, the direction of association is similar to previous studies showing a positive relationship between SES and perceived racial discrimination (Perez et al. 2008; Gong et al. 2017). As Gong et al. (2017) note, individuals with higher levels of education and income may "develop a more sophisticated and critical view of their society and become more sensitive to racial/ethnic stereotypes, prejudicial attitudes, and discriminatory behaviors." This would lead to higher reports of perceived discrimination among those with higher SES, regardless of actual experiences of racial discrimination.

[See Table 3.4]

[See Figure 3.1]

Table 3.5 presents the results from the OLS regression model of level of depression. In Model 1, the total vignette score, vignette condition, and gender are included as independent variables without any interaction term. In Model 2, an interaction term between total vignette score and vignette condition is added; Model 3 explores the interactive effect between the total vignette score and gender.

In Model 1, a one-point increase in total vignette score is associated with a 0.19-point increase in the level of depression ($p<.001$). Women also have a 0.44 point higher level of depression ($p<.05$). Participants with an associate level of education and above have a 0.61 point

higher level of depression ($p<.05$) compared to those with less than associate level of education. In addition, lower level of English proficiency is associated with a 0.55 point higher level of depression ($p<.05$). Model 2 containing the interaction term between the total vignette score and the vignette condition shows a result that is very similar to that of Model 1. The interaction term is not significant, demonstrating that the association between the total vignette score and the level of depression does not vary by vignette condition.

Results from Model 3, on the other hand, show that the connection between the total vignette score and the level of depression varies by gender. For men, a one-point increase in the total vignette score is associated with a 0.28-point increase in the level of depression ($p<.001$). For women, a one-point increase in the total vignette score is associated with a 0.1-point increase (= 0.28 - 0.18, in which the interaction term between the total vignette score and gender is significant, at $p<.01$) in the level of depression. Figure 3.2 visualizes the predicted levels of depression by gender at different levels of the total vignette score. At the total vignette score one standard deviation below the mean (8.6), men report lower level of depression than women; however, the increase in the total vignette score is more strongly associated with the level of depression among men, as shown in the steeper slope of the regression line for men compared to women. The correlations between the level of depression and other covariates are very similar to those from Model 1.

[See Table 3.5]

[See Figure 3.2]

Discussion and Conclusion

This study aimed at examining what kinds of racial discrimination Asian Americans experience by comparing the level of perceived racial discrimination based on two series of vignettes. Participants were randomly assigned to one of the two vignette series. I drew the "Asian vignettes" from racial discrimination frequently experienced by Asian Americans in the cognitive interviews from the first empirical chapter, and the "EDS vignettes" from the EDS questionnaire. I also tested whether there is a gender difference in the association between vignette type (i.e., being assigned to the Asian vignettes vs. the EDS vignettes) and the perceived level of discrimination. Next, I investigated whether Asians with higher levels of perceived racial discrimination are more likely to have higher levels of depression, and whether this connection varies by vignette type and gender.

In short, the findings show that Asians report higher levels of perceived discrimination on the Asian vignettes compared to the EDS vignettes, especially in the case of Asian women. I also found that Asian Americans with higher levels of perceived discrimination are likely to report higher levels of depression, regardless of the vignette type. This connection between perceived discrimination and depression was stronger for men.

The results from this study indicate that while the EDS can offer valuable insights into the discrimination experiences of racial minorities (particularly Black Americans), the scale is limited in capturing the experiences of Asian Americans. Racial discrimination experiences among Asian Americans need to be better incorporated into the measure, as seen in the higher level of perceived racial discrimination based on the Asian vignettes compared to the EDS vignettes. This is especially the case for Asian women, as shown in stronger marginal effects of

the Asian vignette condition on the level of perceived racial discrimination among Asian women than men. The results also suggest that more targeted policy efforts may be necessary to reduce mental health consequences of racial discrimination among Asian men, as the connection between racial discrimination experiences and depression level was stronger for men than women among Asian Americans.

Taken together, this study builds on the contributions of the first empirical chapter in improving the understanding about experiences and perceptions of racial discrimination among Asians. Utilizing a survey experiment, I evaluated the applicability of the EDS, the most widely used measurement of racial discrimination, in measuring the experiences among Asian Americans. I also suggested ways to improve the scale by incorporating the types of racial discrimination frequently experienced by Asian Americans, a group that has faced increased racial discrimination in recent years. Furthermore, this study contributes to the intersectionality literature by exploring how the mental health consequences of racial discrimination may differ by gender among Asian Americans, an understudied population on the topic.

Limitations and future directions

There are some limitations to this study that could be complemented by future research. First, while the findings show gender differences in the relationship between levels of depression and levels of perceived racial discrimination, the study did not address how and why such differences occur. Future studies could examine coping mechanisms that individuals employ when faced with racial discrimination, and the gender variation there may be in coping strategies among Asians. Next, the current age range of the sample is limited to young adults who are 18-29 years old. While this represents a group with diverse experiences and interactions with the

wider society, future research will benefit from exploring how Asian Americans across different age groups experience and perceive racial discrimination, distinguishing the effects of age from other related factors such as the length of stay in the U.S. and English proficiency. The gender variation in the mental health consequences of discrimination in different age groups is worth exploring as well, as coping strategies and gendered self-images may differ across age groups.

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Tables and Figures

Table 3.1. Characteristics of the Sampling Quota and the Recruited Sample

Criteria	Categories	Sampling quota	Recruited sample
Gender	Female	50%	51%
	Male	50%	49%
Education level	Less than associate	57%	41%
	Associates and above	43%	59%
Household income	Less than $50,000	26%	32%
	$50,000-$84,999	20%	27%
	$85,000-$149,999	27%	29%
	$150,000 or more	27%	12%

Table 3.2. Descriptive Statistics on the Asian American Adults between Ages of 18-29 and Tests of Differences between Vignette Conditions (N=730)

Variables	Mean or Percent			p-value
	Overall	In Asian vignette condition (N=363)	In EDS vignette condition (N=367)	
Female	50.6	51.2	49.9	
Age (SD)	23.1 (3.3)	23.0 (3.3)	23.1 (3.2)	
Household income (ref = less than $50,000)				*
$50,000-$84,999	26.9	27.6	26.2	
$85,000-$149,999	28.8	32.0	25.9	
$150,000 or more	12.1	13.5	10.9	
Associate degree or above	58.9	59.5	58.3	
Employment status (ref = working)				
Unemployed	9.7	9.1	10.1	
Student	36.0	39.4	33.0	
Other	3.8	3.0	4.6	
Living with a partner	25.2	24.0	26.4	
Currently married	11.7	10.7	12.8	
Race (ref = East Asian)				
Southeast Asian	29.7	28.9	30.5	
South Asian	27.1	26.5	27.8	
Other Asian racial classification	7.7	9.1	6.3	
Born in the United States	54.4	55.9	52.9	
Duration of stay (years) (SD)	17.9 (7.7)	17.9 (7.4)	17.9 (7.6)	
Lower English proficiency	24.5	25.1	24.0	

* $p < .05$

Table 3.3. Level of Perceived Racial Discrimination on Each Vignette and by Vignette Condition and T-Test of Differences in Total Score of Perceived Discrimination (N=730)

Item	Mean (SD)	p-value
Vignettes based on Asian experiences		
A-1. Microaggressions related to English proficiency	2.9 (1.2)	
A-2. Stereotype about math ability	2.2 (1.2)	
A-3. Treatment as a perpetual foreigner while being ignored interethnic differences	2.8 (1.3)	
A-4. Gendered stereotypes/discrimination in dating	2.3 (1.1)	
Total	10.1 (0.2)	***
Vignettes based on the EDS		
B-1. “Not smart”	1.8 (1.1)	
B-2. “Afraid of you”	1.9 (1.1)	
B-3. “Dishonest”	1.6 (0.9)	
B-4. “Less courtesy”	2.0 (1.1)	
Total	7.2 (0.2)	

*** $p < .001$

Table 3.4. OLS Regression Model of Level of Perceived Racial Discrimination (N=730)

	M1		M2	
Variables	Coef.	SE	Coef.	SE
Asian vignette condition	2.89	(0.24)***	2.35	(0.35)***
Female	0.40	(0.25)†	-0.12	(0.35)
Asian vignette condition x female			1.06	(0.49)*
Age	-0.03	(0.05)	-0.03	(0.05)
Household income (ref = less than $50,000)				
$50,000-$84,999	0.18	(0.33)	0.20	(0.33)
$85,000-$149,999	0.20	(0.33)	0.20	(0.33)
$150,000 or more	0.31	(0.42)	0.35	(0.42)
Associate level of education and above	0.26	(0.29)	0.24	(0.29)
Employment status (ref = working)				
Unemployed	-0.99	(0.44)*	-1.02	(0.44)*
Student	-0.47	(0.31)	-0.48	(0.31)
Other	0.06	(0.66)	0.11	(0.66)
Living with a romantic partner	0.02	(0.35)	0.00	(0.35)
Currently married	-0.15	(0.47)	-0.11	(0.47)
Race (ref = East Asian)				
Southeast Asian	0.12	(0.30)	0.14	(0.30)
South Asian	-0.19	(0.32)	-0.17	(0.32)
Other Asian racial classification	0.14	(0.49)	0.17	(0.49)
Born in the United States	-0.10	(0.37)	-0.04	(0.37)
Duration of stay in the U.S. (years)	0.01	(0.02)	0.01	(0.05)
Lower level of English proficiency	0.25	(0.30)	0.21	(0.30)
Adjusted R^2	0.16		0.17	
F statistics	8.85***		8.68***	

†p < .1. *p < .05. **p < .01. ***p < .001.

Figure 3.1. Marginal Effect of Vignette Type on Level of Perceived Discrimination by Gender, Means and 95% Confidence Intervals

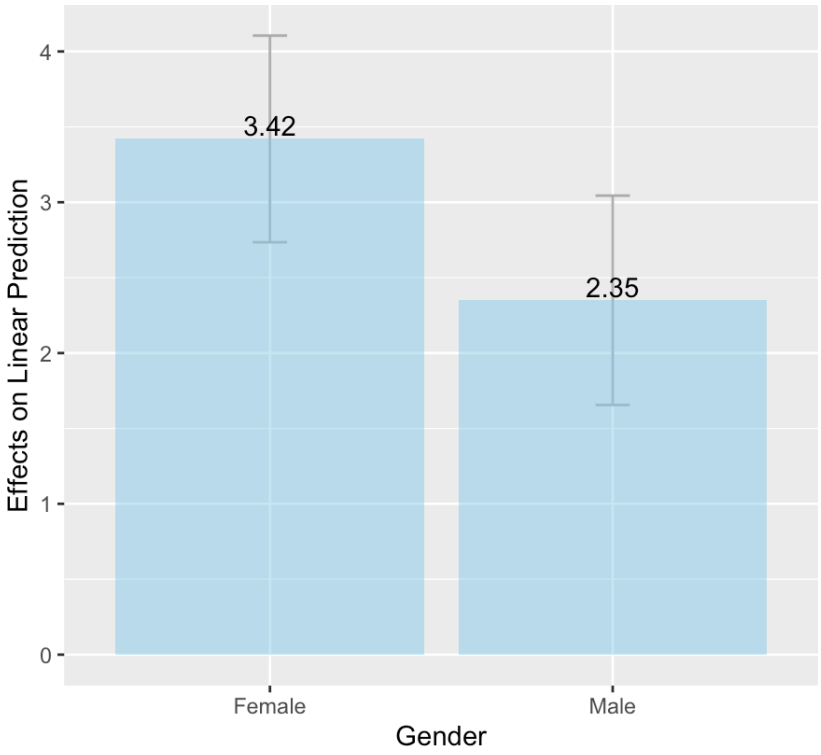
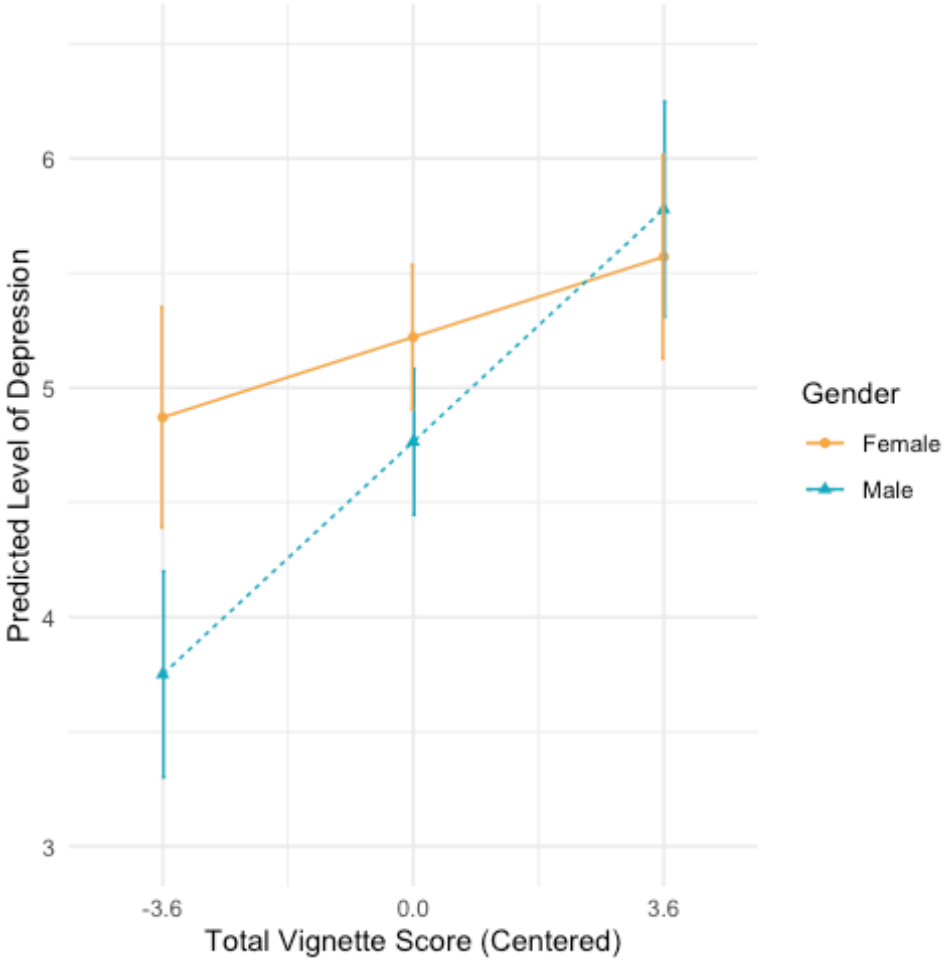


Table 3.5. OLS Regression Model of Level of Depression (N=730)

	M1		M2		M3	
Variables	Coef.	SE	Coef.	SE	Coef.	SE
Total vignette score (centered)	0.19	(0.03)***	0.21	(0.05)***	0.28	(0.05)***
Asian vignette condition	-0.18	(0.24)	-0.18	(0.24)	-0.14	(0.24)
Total vignette score (centered) x Asian vignette condition			-0.03	(0.07)		
Female	0.44	(0.23)†	0.45	(0.23)†	0.46	(0.23)*
Total vignette score (centered) x female					-0.18	(0.06)**
Age	-0.04	(0.05)	-0.04	(0.05)	-0.03	(0.04)
Household income (ref = less than $50,000)						
$50,000-$84,999	0.36	(0.30)	0.37	(0.30)	0.35	(0.30)
$85,000-$149,999	-0.04	(0.30)	-0.05	(0.30)	-0.03	(0.30)
$150,000 or more	-0.42	(0.38)	-0.41	(0.38)	-0.38	(0.38)
Associate level of education and above	0.61	(0.27)*	0.60	(0.27)*	0.59	(0.27)*
Employment status (ref = working)						
Unemployed	0.40	(0.40)	0.40	(0.40)	0.48	(0.40)
Student	0.10	(0.28)	0.11	(0.28)	0.17	(0.28)
Other	-0.02	(0.60)	0.03	(0.60)	-0.09	(0.60)
Living with a romantic partner	-0.04	(0.32)	-0.02	(0.32)	0.00	(0.32)
Currently married	-0.28	(0.43)	-0.29	(0.43)	-0.35	(0.43)
Race (ref = East Asian)						
Southeast Asian	-0.06	(0.28)	-0.06	(0.28)	-0.11	(0.28)
South Asian	0.25	(0.29)	0.25	(0.29)	0.24	(0.29)
Other Asian racial classification	0.17	(0.44)	0.16	(0.45)	0.28	(0.44)
Born in the United States	-0.00	(0.34)	0.01	(0.34)	0.04	(0.34)
Duration of stay in the U.S. (years)	-0.02	(0.02)	-0.02	(0.02)	-0.03	(0.02)
Lower level of English proficiency	0.55	(0.27)*	0.55	(0.27)*	0.55	(0.27)*
Adjusted R^2	0.06		0.08		0.09	
F statistics	3.27***		3.12***		3.57***	

†p < .1. *p < .05. **p < .01. ***p < .001.

Figure 3.2. Predicted Levels of Depression by Total Vignette Score and Gender, with 95% Confidence Intervals



Appendix

Survey questionnaire

* Parts in square brackets refer to instructions for administering the survey.

1. Are you currently living inside the United States (excluding U.S. territories) or outside the U.S.?
    a. Inside the United States
    b. Outside the United States

2. Have you been living in the United States for a year or more?
    a. Yes
    b. No

3. Please enter your current age.

4. Which of the following best describes your race? Please select all that apply.
    a. White
    b. Black or African-American
    c. Asian or Asian-American
    d. American Indian or Alaska Native
    e. Native Hawaiian or Other Pacific Islander
    f. Other
    g. Prefer not to answer

5. Are you of Hispanic, Latino, or Spanish origin, such as Mexican, Puerto Rican or Cuban?
    a. Yes
    b. No
    c. Prefer not to answer

6. Which of the following best describes your race in detail? Please select all that apply.
    a. Chinese
    b. Filipino
    c. Asian Indian
    d. Vietnamese
    e. Korean
    f. Japanese
    g. Cambodian
    h. Hmong
    i. Pakistani
    j. Other Asian (specify)

7. What is your gender?
    a. Male

b. Female
c. Non-binary / third gender

Questions 8 to 10: Please read the following scenarios carefully and answer questions that follow each scenario. [Repeat questions 9-11 for each vignette.]

8. [Insert vignettes series A or B, based on the experiment group. Randomize the order of vignettes.] In your day-to-day life, how often do experiences similar to this scenario happen to you? [asked for all scenarios, except for vignettes series A-4]

a. Always
b. Often
c. Sometimes
d. Rarely
e. Never

[Randomize the order of Q9 (Q9-1 and Q9-2) and Q10 (so that half of the sample gets Q9 first, and the other half gets Q10 first).]

9-1. [Asked to those who answer "rarely" or more frequently]: Which of the following are reasons that you think experiences like this happen to you? Please select all that apply.

a. Your race or ancestry
b. Your gender
c. Your age
d. Your religion
e. Your sexual orientation
f. Your education or income level
g. Your physical disability
h. Other (specify)

9-2. Which of the following do you think is the <u>main</u> reason that experiences like this happen to you? [Only give the options selected above.]

10. Do you think that this scenario described an instance of racial discrimination?

a. Definitely
b. Probably
c. Possibly
d. Probably not
e. Definitely not

Vignettes series A

1) You are visiting the apartment management office to talk about an issue with your apartment unit. During your conversation with a non-Asian in the management office, the person speaks very slowly, as if you don't understand, in an annoyed tone.

2) Imagine you are working at a company. At work, you are in a team meeting with non-Asian colleagues. They usually work on similar tasks as you do. There is a discussion about the budget. A colleague asks you, "What do you think? You must be good at numbers."

3) You go into a store for the first time in a neighborhood where there are few Asian people. A non-Asian greeter, whom you have never met before, says "hi" to you in an Asian language that you do not speak.

4) [Respondents are directed to different options based on their gender selected above.]
Men: Suppose you are single. You have been looking for people to date, but it has been generally difficult finding non-Asian people in offline settings or on dating apps. You feel like you are treated differently by them because of your racial or ethnic background.

[For those who answered "rarely" or more often in Q10, ask:] Why do you feel like you are passed over?

Women: In your day-to-day life, how often do experiences similar to this scenario happen to you because of your race or ethnicity?
4-1) Non-Asian people act as if they think you're submissive in a dating context.
4-2) Non-Asian people act as if they think you're exotic in a dating context.

Vignettes series B

1) Imagine you're working at a company. At work, you have been working on a team project with non-Asian colleagues. There is an issue with the project, and you suggest some ideas about how to solve it. After you share your ideas with your colleagues, some of them suggest that you are not smart enough to solve the issue at hand.

2) When you walk down a street, non-Asian strangers avoid walking past you closely. They have a frightened look on their face as they walk past you.

3) You go to a doctor's office for your first doctor's appointment and fill out a medical history form truthfully. After reading your form, a non-Asian doctor whom you have an appointment with gives you a quizzical stare. The doctor asks you, "are you sure you don't want to edit any of your answers?"

4) You go into an expensive clothing store in your neighborhood for the first time. While shopping at the store, a non-Asian salesperson directs you toward the items on sale. When you attempt to make a purchase, the salesperson ignores you as if you are not a serious customer or as if you do not have enough money.

Questions 11 to 19: In your day-to-day life, how often do the following things happen to you?
Answer options for Q12 to Q20:

a. Almost everyday
b. At least once a week
c. A few times a month
d. A few times a year
e. Less than once a year
f. Never

11. You are treated with less courtesy than other people are.

12. You are treated with less respect than other people are.

13. You receive poorer service than other people at restaurants or stores.

14. People act as if they think you are not smart.

15. People act as if they are afraid of you.

16. People act as if they think you are dishonest.

17. People act as if they're better than you are.

18. You are called names or insulted. or You are verbally abused or insulted. [split sample design]

19. You are threatened or harassed.

20. [For those who answered "a few times a year" or more frequently to at least one question from Q12-Q20] What do you think is the main reason for these experiences? Please select all that apply.

a. Your ancestry or race
b. Your gender
c. Your age
d. Your religion
e. Your sexual orientation
f. Your education or income level
g. Your physical disability
h. Other (specify)

Questions 21 to 24: In your day-to-day life, how often do you do the following things?
Answer options for Q22 to Q25:

a. At least once a week
b. A few times a month
c. A few times a year

d. Less than once a year
e. Never

21. I try to prepare for possible insults from other people before leaving home.

22. I feel that I always have to be very careful about my appearance to get good service or avoid being harassed.

23. I carefully watch what I say and how I say it.

24. I try to avoid certain social situations and places.

Questions 25 to 29: Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week.

Answer options for Q25 to Q29:

a. Most or all of the time
b. A lot of the time
c. Some of the time
d. Rarely or none of the time

25. I felt that I could not shake off the blues, even with help from my family and my friends.

26. I felt depressed.

27. I was happy.

28. I enjoyed life.

29. I felt sad.

30. Would you say you speak English…

a. Very well
b. Well
c. Not well
d. Not at all

31. What is the highest degree you have attained?

a. Middle school degree or less
b. High school degree or GED
c. Associate degree
d. Bachelor's degree
e. Graduate degree

32. Are you currently living with a romantic partner?

a. Yes
b. No

33. What is your marital status?
a. Never married
b. Currently married
c. Widowed
d. Divorced
e. Separated

34. Which of the following best describes your work situation?
a. Working now
b. Only temporarily laid off, sick leave, or maternity leave
c. Looking for work, unemployed
d. Retired
e. Disabled, permanently, or temporarily
f. Keeping house
g. Student
h. Other (specify):

35. In total, about how long have you lived in the United States throughout your life (in years)?

36. This question is about the total income of your household for the past 12 months. In which of these groups did your total household income fall before taxes? Your total income includes interest or dividends, rent, Social Security, other pensions, alimony or child support, unemployment compensation, public aid (welfare), armed forces or veteran's allotment.
a. Less than $25,000
b. $25,001 to $49,999
c. $50,000 to $84,999
d. $85,000 to $140,999
e. $150,000 or more

37. Do you have any questions or comments about the survey?

CHAPTER IV

Health Status and Residential Moves into Different Housing Tenure Among U.S. Older Adults

Introduction

Residential moves have impacts on the well-being of older adults, both in the short and the long run. As people spend more time at their homes in later life, the satisfaction from housing and neighborhood becomes more important for their general well-being. Residential moves may also be very consequential for the allocation of an individual's wealth portfolio, depending on the type of housing one moves into. For instance, moving from owned into rental housing decreases the fraction of wealth allocated to housing, allowing it to be liquidated and used more readily for various purposes. As wealth may be a critical source of financial resources at older ages (Killewald et al. 2017), residential moves have significant effects not only on psychological well-being but also financial well-being of older adults.

While residential mobility is influenced by various transitions and events that occur in the life course, health status merits special attention as a factor that becomes salient for residential moves occurring at older ages. Research shows that health challenges may trigger reactive moves, while constraining voluntary moves at older ages. For example, health issues that require professional assistance may precipitate moves into nursing homes.

However, it remains unclear from previous research how health challenges are related to moves into different housing tenure[6], even though housing tenure is an important determinant of older adult well-being (Herbers and Mulder 2017). In addition, there is a dearth of research that examines how health status may be associated with residential moves over time with a nationally representative sample in the United States. To address these deficits, this study investigates the relationship between health status and residential moves into owned vs. non-owned housing, using longitudinal, nationally representative data from the Panel Study of Income Dynamics (PSID) that spans the time period between 2001-2015. In particular, I will examine how the presence of acute/chronic health conditions and poor self-rated health are associated with the likelihood of moving into different housing tenure among older adults.

Background

Residential moves represent one of the most consequential decisions in later life in terms of well-being and finances, especially for older adults. First, as people age, they spend more time in their own homes rather than being involved in outside activities. With the home being at the center of their lives, older adult well-being is significantly affected by satisfaction with their home, neighborhood, and social connections within their residential community (Kendig et al. 1996; Rioux 2005). In particular, housing is "an important aspect of the larger residential environment in which older persons seek to optimize their quality of life," as Erickson et al. (2006) note. Residential moves are also important for older adults because of their financial

[6] Housing tenure is defined as "the arrangements under which the household occupies all or part of a housing unit" (OECD, 2022).

consequences. At older ages, housing represents one of the most important sources of wealth (Fong et al. 2021). As residential moves may involve significant reorganization and changes in the wealth portfolio (e.g., in the case of moves from owned into rental or institutional housing), they are consequential for older adult financial well-being.

In the remainder of this literature review section, I will first outline theoretical perspectives on residential mobility and the life course. Then, I will summarize research findings on important individual characteristics and life events associated with residential mobility among older adults. Finally, I will summarize previous studies on the relationship between health and residential mobility at older ages, including research on why moves driven by health reasons merit special attention.

Theoretical perspectives on residential mobility and the life course

Among theories of migration and residential mobility, the life course model provides insights about important triggers and constraints of residential mobility at older ages. The life course model has become a prominent theory that explains residential mobility, representing recent developments in theorizing residential mobility as people age. The perspective emphasizes the dynamic nature of life transitions and recognizes that different population subgroups have unique life experiences (Bailey 2009; Geist and McManus 2008; Falkingham et al. 2016; Warnes 1992), addressing the limitations of the life cycle perspective. According to the life course model, some life events act as triggers or constraints for residential moves (Clark 2013; De Groot et al. 2011). Residential mobility in later life is influenced by major life events related to aging, such as children leaving home, retirement, death of a spouse, and health challenges (Kley 2011; Fischer and Malmberg 2001).

Theories of elderly residential mobility based on the life course model illustrate the relationship between health and residential moves in detail. According to Litwak and Longino (1987), life events can lead to three categories of moves at older ages (Bures 1997). The first type of moves is driven by a search for better amenities in terms of the natural environment, housing, transport, and social services. These moves are especially prevalent among relatively healthy and wealthy older adults around retirement (Davies and James 2011; Wilmoth 2010; Longino et al. 2008). Next, assistance-driven moves refer to moves to closer proximity with kin, so that older adults can receive assistance with health-related limitations. These moves are precipitated by bad health and chronic disabilities (Choi et al. 2015; Miller et al. 1999; Choi 1996). Finally, older adults move into institutional care when family members are no longer able to provide care with health-related needs (Gaugler et al. 2003; Wilmoth 2010). Subsequent studies also show that some older adults point out poor health and closer kinship as reasons for moving (Bekhet et al. 2009; Sergeant and Ekerdt 2008; Choi 1996), while others report having moved in search of amenities (Niedomysl and Hansen 2010). Taken together, the theories and findings suggest that poor health may trigger reactive residential moves, while bad health can act as a constraint to voluntary moves.

Health and residential mobility among older adults

In this section, I outline recent empirical findings informed by the aforementioned theories on residential mobility and the life course. Recently, studies have sought to explain how life events and individual characteristics shape residential mobility among older adults. For instance, moves are more prevalent among the so-called "young-old" – those in their 60s – compared to older adults in their 70s and beyond, as they transition into retirement and may

search for better amenities and climate (Atkins 2018; Bradley et al. 2008). Those with higher levels of education and financial resources as well as urban residents also move at a higher rate, as they are more likely to make proactive residential moves enabled by their personal resources (Pope and Kang 2010; Meyer and Speare 1985; Moore and Rosenberg 1994). In addition, older adults may move to live in proximity to their adult children or extended family (Spring et al. 2017).

On the other hand, some life course events and individual characteristics drive moves that are more reactive in nature. For example, moves may occur as an adjustment to disruptive life course events, such as divorce and widowhood (Mulder and Wagner 2010; Choi 1996; Choi 2003; Egsgaard 2022). Renters move at a higher rate than homeowners as they experience lower housing stability (Li et al. 2022; Burns et al. 2012; Desmond et al. 2018). Studies suggest that poor health is another salient factor for moving among older adults (Sabia 2008; Moore and McGuinness 1997; Erickson et al. 2006).

The presence of health conditions may trigger moves as people may opt to move out of their homes in order to receive health-related assistance from family members or health care providers (Gaugler et al. 2003; Wilmoth 2010; Choi et al. 2015). The physical maintenance of the house also becomes burdensome for some older adults with health issues, especially for those with mobility limitations (Andersson and Abramsson 2012); some houses were not built in ways to accommodate mobility limitations, prompting residential moves (Stoeckel and Porell 2010). Lastly, older homeowners who are under financial burden due to medical expenses could face the need to move out of their current homes, which comprise a large portion of their assets (Painter and Lee 2009; Golant 2011).

Residential moves related to health issues are important as these moves are particularly reactive in nature at older ages. That is, movers do not always have the luxury of choosing the ideal place or time to move, as is the case with forced/involuntary moves driven by factors such as "private market forces, government action, disaster loss, eviction, and foreclosure (Siskar and Evans 2021)." Health challenges are also likely to lead to moves into rented or institutional housing, rather than into owned housing, as health conditions may require constant medical attention and impose financial burden (Helderman 2007; Painter and Lee 2009). This is especially important for older adults because moving into different housing tenure results in consequences for the allocation of wealth portfolio, a critical source of financial resources after retirement.

In addition, there are different psychological, instrumental, and financial advantages associated with living in owned vs. non-owned housing for older adults. First, residential stability associated with homeownership can increase well-being for older adults, as housing is known to be a determinant of mental health and housing instability has negative effects on health (Li et al. 2022; Connolly 2012). Homeownership is also associated with a sense of accomplishment and can foster attachment to a place and a community among older adults (Ortiz and Zimmerman 2013; Park et al. 2022). In addition, homeownership can improve older adults' living standards depending on how they maximize its benefits (Huisman et al. 2004; McCann et al. 2012; Park et al. 2022). Owning a house can also serve as a form of financial investment for older adults (Després and Lord 2005).

In comparison, living in non-owned housing (rental/institutional housing or living at a family member's home) is associated with a different set of advantages for older adults. Financially, rental housing such as public housing may "provide a safety net for the very

unhealthy poor (Ruel et al. 2010).” Moving to medical institutions such as nursing homes can also decrease the housing cost burden for low-income older adults (Morales and Robert 2020). Next, older adults with health issues may be able to receive health-related assistance by living with family members or in medical institutions (Hersch et al. 2008). Institutional housing can especially be more suitable for those with mobility limitations; older adults can also benefit from not having to attend to the physical maintenance of the house.

Despite the important of the consequences of health-driven moves at older ages, prior research about the association between health and residential mobility tend to be geographically confined to certain areas and focused on cross-sectional analysis (Wilmoth 2010). Furthermore, moves into different housing tenure have not been sufficiently examined in relation with health status (Roy et al. 2018). Addressing these limitations of previous research (Granbom et al. 2019), this study explores the relationship between health status (represented by the presence of acute/chronic conditions; self-rated health) and moves into different housing tenure among older adults, using longitudinal, nationally representative data.

Current Study

From theories and previous findings on residential mobility among older adults, it is reasonable to suspect that having bad health necessitates moves, especially moves into non-owned housing. Given this background, this study answers the following research questions.

Research Question 1: Are older adults who experience more health problems more likely to move?

I hypothesize that older adults who experience more health problems more likely to move, as health problems may trigger moves driven by needs for assistance/physical accommodations and financial burden.

Research Question 2: Are adults who experience more health problems more likely to move into non-owned housing?

I hypothesize that older adults who experience more health problems more likely to move into non-owned housing, as health problems may require constant medical attention and impose financial burden.

Data and Methods

Data

This study uses data from the 8 waves of the Panel Study of Income Dynamics (PSID) from 2001 to 2015, during which variables indicating health status continued to be measured. The PSID is a nationally representative panel survey of Americans who were first interviewed in 1968 and their descendants. Conducted by the University of Michigan, the PSID follows families and their descendants, surveying them annually from 1968-1997 and biennially since 1997. The PSID drew its original 1968 sample from a combination of an over-sample of low-income families and a nationally representative sample, which led to a large subsample of African Americans. The combined sample constitutes a national probability sample of U.S. families in 1968, and the sample-following rules of the PSID are designed so that the sample remains nationally representative at any point in time and across time (PSID Main Interview User Manual, 2019).

These data are ideally suited for this research, as they contain detailed geographical information about residential moves and health status of respondents in each wave. I defined the analytic sample (n=1,351 corresponding to 5,830 person-waves) as consisting of community-dwelling reference persons and spouses/partners (formerly called "heads" and "wives" in PSID) who were 60-85 years old as of 2001 (Wave 31 of the PSID). The study period for the analysis spans 8 waves of the PSID, from 2001 to 2015.

Outcome variable

The first outcome variable is a binary indicator of whether a person moves out of his/her own home (counting only the first move) during the 2001-2015 study period. I utilize the survey question in the PSID that asks whether families changed their residential locations between survey waves, at each wave between 2001-2015. The second outcome variable captures not only whether a person moved since the previous wave but also whether they owned their new home. It is divided into the following categories: not having moved, moved into owned housing, and moved into non-owned housing (non-owned housing includes living in rental housing, medical institutions, and family members' homes[7]).

Explanatory variables

I rely on three time-varying, contemporaneous indicators of health status and other time-varying covariates. I utilize the definition of acute and chronic health conditions adopted from the work of Thompson and Conley (2016) on the relationship between health declines and

[7] With the given data, it is not possible to examine the exact type of non-owned housing one moves into. The implications of this limitation will be mentioned further in the Discussion and Conclusion section.

wealth. I complement them with another dimension of health status: self-rated health. Having an acute health condition is defined by a binary indicator of having a diagnosis of cancer, heart attack, heart disease or stroke from a doctor. Having a chronic illness is defined by another binary indicator of having a diagnosis of diabetes, high blood pressure, asthma, arthritis, or lung disease from a doctor. The last indicator of health I utilize is a binary indicator of whether a person is in "poor" self-rated health status (as opposed to "fair," "good," "very good," or "excellent" self-rated health status). Self-rated health is a reliable and relevant indicator of the overall health status (Christian et al. 2011; Lundberg and Manderbacka 1996), which can also capture more subjective dimensions of health status.

The models also include time-varying and fixed (time-invariant) control variables informed by the life course perspective on residential mobility and previous studies on migration behaviors of older adults. Measures of sociodemographic characteristics such as age, education, race, and gender, economic status, and homeownership status are included in these models as statistical controls. Control variables other than age, education, race, gender, and homeownership status are coded as time-varying, contemporaneous covariates; fixed covariates are measured at baseline in 2001. Age variable is categorized into five different subgroups: 60-64 years old (reference category), 65-69 years old, 70-74 years old, 75-79 years old, and 80-85 years old at baseline. Education level is divided into less than high school (reference category), high school/some college, and bachelor's degree/more. Race variable is categorized into non-Hispanic White (reference category), non-Hispanic Black, and other racial/ethnic classification which encompasses American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, and individuals who identify as Hispanic or multiracial. Gender is coded as either male or female. As for economic indicators, Income-Needs Ratio (INR) refers to the ratio of total family income to

annual family needs standard (poverty threshold) based on family size, the number of persons in the family under age 18, and the age of the householder. I use logged values of INR; for zero reported values of INR[8], I recoded them into the value of 1 before converting them into the log form, adopting an approach in the literature for handling zero and negative values before the log conversion (Nam 2021; Di et al. 2007). Wealth was logged in a similar way, and negative reported values of wealth were recoded into 1 before converting them into log form. Wealth variable is derived from the PSID dataset, in which wealth is constructed as sum of values of seven asset types (business assets, checking/savings, net worth of real estate excluding primary residence, stocks, net worth of vehicles, IRA/private annuities, and other assets) net of debt value plus value of home equity. Homeownership status is divided into homeowners and non-homeowners.

I also control for indicators of labor force status, categorized as in the labor force (reference category), retired, disabled, and homemaker. Couple status is a binary indicator of whether a spouse/partner is present in the household. Divorced/widowed/separated is another binary indicator about whether individuals are currently divorced, widowed or separated. Area characteristics are represented by a binary indicator about whether an individual lives in a metropolitan area or not. Geographical proximity to one's children is categorized into living in a different county than child, living in the same county as child, living with child, and without a child (reference category).

Finally, I include the dimension of time as a covariate to take into consideration the housing market crisis during the Great Recession. As the recession affected the housing market

[8] There are 19 observations with a zero value for INR, which occurs from not having any family income.

from 2007 to 2010 (Federal Reserve History, 2013), I coded time into three different periods accordingly: pre-recession, during the recession (reference category), and post-recession.

Analytic Strategy

To model the time from the first survey year included (2001) to having a first residential move, I conduct discrete-time event history analysis using binomial and multinomial logistic regression models. Event history analysis measures time to an event (residential moves) within a designated duration of time. Event times are measured in discrete intervals of two years in this study, which corresponds to the biennial waves of the PSID. This yields the hazard or risk that the event will occur for a given individual, conditional on having survived until the previous time period. The hazard function for interval *t* and individual *i* can be expressed as:

$$h_{ti} = \Pr\,(y_{ti} = 1 | y_{si} = 0,\, s < t),$$

where y_{ti} is a binary variable coded as 1 when the event occurs at a given time interval (*t*) for a given individual (*i*) and coded as 0 when the event does not occur; a time interval (*s*) refers to the previous time period. Individuals are considered to be "at risk" of experiencing an event until experiencing the event for the first time or until they are censored (Steele 2008). Cases in which individuals are censored include death, attrition, and changes in homeownership status that did not involve a move such as inheriting a house from a household member. I estimate a discrete-time hazard model of moving using a binomial logistic regression model:

$$\log\left(\frac{h_{ti}}{1 - h_{ti}}\right) = \alpha(t) + \beta \mathbf{x_{ti}}$$

where the baseline logit hazard $\alpha(t)$ is specified by including *t* as a linear function of time, and $\mathbf{x_{ti}}$ is a vector of covariates which may be time-varying or time-invariant.

Then, I estimate a discrete-time hazard model of moving using a multinomial logistic regression model to capture different types of moves with the following categories: $y_{ti} = 0$ for no event, $y_{ti} = 1$ for moves into non-owned housing, and $y_{ti} = 2$ for moves into owned housing. The discrete-time hazard function can then be expressed as:

$$h_{ti} = \Pr(y_{ti} = r \mid y_{si} = 0, s < t) \text{ for } r = 1, 2,$$

from which a discrete-time hazard model of moving using a multinomial logistic regression model is estimated (Steele 2008). Standard errors are clustered at the family level to allow for intragroup correlation. I conducted the analysis using Stata's logit and mlogit command.

In Model 1, I estimate the association between health status and the likelihood of moving in general, including controls for sociodemographic characteristics, homeownership status, retirement status, couple status, area characteristics, geographical proximity to one's children, and time periods. In Model 2, I examine the association between health status and the likelihood of moving into owned vs. non-owned housing, including the aforementioned control variables.

Results

Table 4.1 shows the percentage of the overall sample in 2001 who stayed in their homes without moving, made a residential move, or were censored from previous survey wave by year and move type. As shown in Figure 4.1, the percentage of movers as a whole increased between 2001-2003, followed by a decrease during 2003-2011; the percentage of movers increased again between 2001-2013, and later decreased during 2013-2015. It is worth noting here that the older sample are more likely to die as time passes and be excluded from the data, resulting in a survivorship bias that could decrease the likelihood of moving in general. While moves into non-

owned housing fluctuated during the study period, moves into owned housing showed a steady decrease between 2005-2011. The housing crisis from 2007 that accompanied the Great Recession is likely to have played a part in this decrease in moves into owned housing. It is also likely that fewer people were purchasing houses as the sample grew older over time.

[See Table 4.1]

[See Figure 4.1]

Table 4.2 presents the descriptive statistics of the sample as a whole, and stratified into stayers, movers into non-owned housing, and movers into owned housing. First, health statuses of individuals show substantial differences by their move status. For example, higher proportions of people who moved into non-owned housing had chronic health conditions, acute health conditions, or poor health compared to people who moved into owned housing or people who did not move at all. The proportions of those with chronic health conditions, acute health conditions, and poor health are the lowest among the stayers, followed by movers into owned housing with a slight difference.

As for the covariates related to sociodemographic characteristics, movers into non-owned housing have the highest proportion of older adults who are in the oldest two groups (75-85 years old in 2001) and lowest proportion of those in the youngest two groups (60-69 years old in 2001), compared to stayers and movers into owned housing. Stayers and movers into owned housing show a similar distribution of age groups. Movers into owned housing tend to have higher levels of education compared to the other two groups. There are higher proportions of older adults with the lowest and highest level of education among movers into non-owned

housing compared to stayers. Movers into non-owned housing were also more likely to be non-White (Black or other racial classification) and female compared to people who moved into owned housing or did not move at all. Covariates indicating economic status and homeownership show a consistent pattern among the three groups. Movers into owned housing tend to have the highest Income-to-Needs Ratio (INR) and wealth, followed by stayers with a slight difference. Both INR and wealth are the lowest among movers into non-owned housing. The proportion of homeowners are the highest among movers into owned housing, followed by stayers. As for labor force status, the proportion of the retired and the disabled are the highest among movers into non-owned housing compared to stayers and movers into owned housing, and homemakers among stayers. The proportion of older adults living in a household with a spouse/partner present is the lowest among movers into non-owned housing, while the proportion of the divorced/widowed/separated tend to be the highest within this group compared to stayers and movers into owned housing. The proportion of those living in metropolitan areas is highest among movers into owned housing. The proportion of older adults living near children is highest among stayers, while that of older adults living with children is highest among movers into non-owned housing, compared to other two groups.

[See Table 4.2]

Table 4.3 shows results from the discrete time survival model of moving (binomial logit) for adults who were 60-85 years old in 2001. The odds of moving are higher for older adults who have acute health conditions or poor self-rated health, compared to those without acute health conditions and poor self-rated health, respectively (1.3 times higher for those with acute health

conditions and 1.42 times higher for those with poor self-rated health). Older adults who comprise the oldest-old group (between the ages of 80-85 in 2001) have 1.7 times higher odds of moving than those in the youngest group (between the ages of 60-64 in 2001). Those with higher levels of education (high school/some college and bachelor's/more) also have higher odds of moving (1.49 times and 2.06 times higher, respectively). Finally, older adults who are retired or disabled have higher odds of moving compared to those in the labor force (1.55 times and 2.58 times, respectively).

In contrast, the odds of moving are 0.51 times lower for non-Hispanic Black Americans and 0.53 times lower for homeowners. People with greater wealth are less likely to move. For example, a one-standard deviation increase in logged wealth is associated with a reduction in the odds of moving of by 28 (1-.72) percent. Lastly, the odds of moving are 0.4 times lower for those with a spouse/partner present in their household.

[See Table 4.3]

Table 4.4 shows results from discrete time survival models of moving (multinomial logit) into non-owned vs. owned housing for adults who were 60-85 years old in 2001. First, factors associated with moves into non-owned housing tend to be similar to those associated with moves in general. Consistent with the results from the binomial logistic regression, the relative risk ratio for moving into non-owned housing (versus staying) is 1.62 times higher for those with acute health conditions, and 1.75 times higher for those with poor self-rated health. The relative risk ratio is also 2.86 times higher for the oldest-old group (who were between the ages of 80-85 in 2001) and 2.63 times higher for those with the highest level of education (bachelor's/more). The

relative risk ratio for disabled older adults is 2.61 times higher compared to those in the labor force. In comparison, the relative risk ratio for moving into non-owned housing is 0.33 times lower for homeowners compared to non-homeowners, and 0.38 times lower for non-Hispanic Black Americans compared to non-Hispanic White Americans. The relative risk ratio also becomes 0.64 times lower when logged wealth is one-standard deviation higher, and is 0.16 times lower for older adults with a spouse/partner present in the household compared to those without one present in the household.

As for moves into owned housing, Table 4.4 illustrates that the relative risk ratio is 1.62 times higher for those with high school/some college level of education compared to those with less than high school level of education. The relative risk ratio for moving into owned housing is also 1.68 times higher during the pre-recession period compared to during the recession, which suggests that the cost of housing is more influential in making a purchase decision rather than decisions about renting, moving into an institution, etc. In contrast, older adults who were 75-79 years old in 2001 have 0.54 times lower relative risk ratio than those between the ages of 60-64 in 2001.

[See Table 4.4]

Discussion and Conclusion

The main findings from this research are that among older adults, having acute health conditions and poor self-rated health is associated with residential moves, especially moves into non-owned housing. In detail, 1) health challenges, especially challenges that require prompt

action such as acute health conditions, are likely to result in residential moves for older adults; 2) such moves tend to be moves into non-owned housing, with implications for allocation of wealth portfolio at older ages. Neither types of health conditions (acute/chronic) nor poor self-rated health, on the other hand, were related to moves into owned housing. These different results by destination housing tenure suggest that residential moves among older adults are a complex phenomenon to explain, requiring attention to diverse motivations and individual characteristics associated with moves.

The findings from this study extend scholarship on health and residential mobility at older ages by examining an understudied aspect of residential moves. By investigating how three dimensions of health status (the presence of acute/chronic conditions and self-rated health) are associated with moves into different housing tenure, it is possible to understand more clearly how health relates to residential moves and what implications health-driven moves may have for older adults. In addition, this study takes advantage of the longitudinal, nationally representative design of the data from the Panel Study of Income Dynamics, which increases the generalizability of the findings.

This study also leaves additional questions that could be answered in future research. First, future studies would benefit from examining the relationship between older adult health and different types of residential moves, while taking contextual factors into consideration, such as neighborhood-level socioeconomic status at origin. Previous research suggests that older adults living in more disadvantaged neighborhoods may be more prone to making involuntary moves, controlling for individual-level characteristics (Riley et al. 2016). It is possible that health and neighborhood characteristics interact in ways that affect residential moves and their consequences among older adults. Another contextual factor that may affect residential moves at

older ages can be found at the family level. Research suggests that there are family dynamics at play around older adults' decision making about residential moves (Koenig et al. 2014; Herbers et al. 2014). Examining factors such as partners' health status and the family support system would enrich the understanding about how moving decisions are embedded within the broader family network of older adults.

Another way that findings form the current study would be enriched is to break down the moves into non-owned housing and examine types of non-owned housing older adults move into (rental housing, medical institutions, family members' homes, and so on). These investigations will make it possible to draw more detailed and definitive conclusions about how and why health status may motivate different types of residential moves among older adults.

Finally, future studies could examine how patterns of residential mobility among older adults change over time in relation with health status. This is especially important when the housing market is undergoing substantial changes, as housing is the most valuable financial asset for older homeowners (Butrica and Mudrazija 2016) and residential moves carry a large financial significance. Such "period effects" represent a neglected dimension in older adults' residential mobility research (Golant 2017). Therefore, research that examines the interaction between changes in health and period effects will lead to a more nuanced understanding about the role of health in shaping older adults' residential mobility.

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Tables and Figures

Table 4.1. Percentage of Adults Aged 60-85 in 2001 Who Stayed, Moved, or Were Censored by Age Groups, Year and Move Type (n=1,351)

Survival Until	% Stayers	% Movers (into non-owned housing)	% Movers (into owned housing)	% Right censored
2001	92.0%	4.2%	3.7%	
2003	81.7%	4.3%	4.9%	9.1%
2005	82.1%	4.2%	4.7%	9.1%
2007	81.8%	3.6%	3.4%	11.3%
2009	85.5%	4.5%	2.1%	7.8%
2011	82.4%	3.0%	1.7%	13.0%
2013	81.3%	4.2%	1.8%	12.7%
2015	81.4%	3.0%	1.2%	14.4%

Figure 4.1. Percentage of Adults Aged 60-85 in 2001 Who Moved (n=1,351)

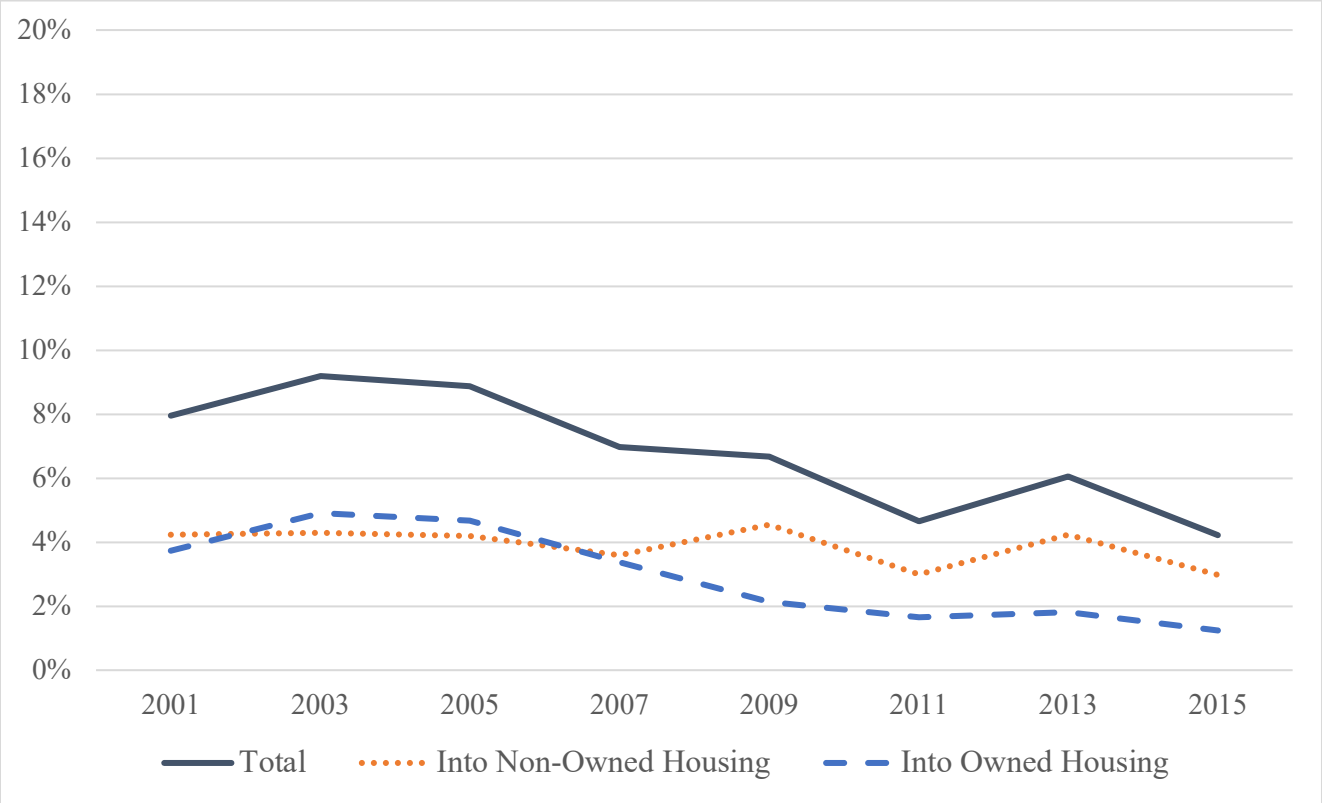

Table 4.2. Descriptive Statistics for Adults Aged 60-85 in 2001 (Mean or Proportion)

	Full Sample	Stayers	Movers into Non-Owned Housing	Movers into Owned Housing
Chronic health conditions[a]	0.744	0.740	0.861	0.743
Acute health conditions[a]	0.378	0.371	0.530	0.397
Poor health[a]	0.096	0.090	0.217	0.106
Age (ref = 60-64 years old in 2001)				
65-69 years old	0.260	0.263	0.199	0.270
70-74 years old	0.252	0.252	0.235	0.274
75-79 years old	0.139	0.137	0.228	0.105
80-85 years old	0.063	0.057	0.171	0.077
Education (ref = less than high school)				
High school or some college	0.553	0.552	0.420	0.691
Bachelor's degree or more	0.208	0.205	0.261	0.220
Race (ref = NH White)				
NH Black	0.092	0.091	0.148	0.055
Other	0.050	0.043	0.214	0.064
Female	0.577	0.567	0.720	0.692
Logged Income-to-Needs Ratio[a]	1.2	1.2	0.7	1.4
(SD)	(0.8)	(0.8)	(0.7)	(0.7)
Logged wealth[a]	11.9	12.0	8.1	12.5
(SD)	(2.9)	(2.7)	(5.2)	(1.9)
Homeowner	0.899	0.912	0.554	0.932
Labor force status (ref = in the labor force)[a]				
Retired	0.672	0.666	0.757	0.720
Disabled	0.021	0.018	0.085	0.024
Homemaker	0.103	0.104	0.094	0.088
Spouse/partner present in household[a]	0.608	0.624	0.184	0.668
Divorced/widowed/separated[a]	0.376	0.362	0.757	0.322
Metropolitan area	0.746	0.741	0.789	0.818
Proximity to children (ref = no child)[a]				
Living far from child	0.355	0.354	0.369	0.383
Living near child	0.397	0.401	0.283	0.302
Living with child	0.188	0.184	0.275	0.181
a. Time-varying covariates				
Unique persons	1,351	949	213	180
Total person-waves		5,830		

Table 4.3. Discrete Time Survival Model of Moving (Binomial Logit) for Adults Aged 60-85 in 2001

Variables	OR	SE
Presence of chronic health conditions[a]	1.08	(0.16)
Presence of acute health conditions[a]	1.30	(0.14)*
Poor self-rated health[a]	1.42	(0.22)*
Age (ref = 60-64 years old in 2001)		
65-69 years old (2001)	0.99	(0.15)
70-74 years old (2001)	1.10	(0.18)
75-79 years old (2001)	0.98	(0.18)
80-85 years old (2001)	1.70	(0.34)**
Education (ref = less than high school)		
High school or some college	1.49	(0.21)**
Bachelor's degree or more	2.06	(0.40)***
Race (ref = NH White)		
NH Black	0.51	(0.09)***
Other racial/ethnic classification	1.06	(0.24)
Female	1.07	(0.11)
Logged Income-to-Needs Ratio[a]	1.07	(0.11)
Logged Wealth[a]	0.90	(0.02)***
Homeowner	0.53	(0.12)**
Labor force status (ref = in the labor force)[a]		
Retired	1.55	(0.26)†
Disabled	2.58	(0.72)**
Homemaker	1.19	(0.28)
Spouse/partner present in household[a]	0.40	(0.12)**
Divorced/widowed/separated[a]	0.69	(0.19)
Metropolitan area	1.07	(0.13)
Proximity to children (ref = no child)[a]		
Living far from child	1.50	(0.38)
Living near child	1.17	(0.30)
Living with child	0.87	(0.25)
Time period (ref = during recession)		
Pre-recession	1.17	(0.17)
Post-recession	0.77	(0.14)
Total person-waves	5,830	
Unique persons	1,351	

a. Time-varying covariates

Table 4.4. Discrete Time Survival Models of Moving by Types of Moves (Multinomial Logit) for Adults Aged 60-85 in 2001: Moves into Non-Owned vs. Owned Housing

Variables	Moves into Non-Owned Housing RRR	SE	Moves into Owned Housing RRR	SE
Presence of chronic health conditions[a]	1.22	(0.28)	1.06	(0.20)
Presence of acute health conditions[a]	1.62	(0.25)**	1.08	(0.17)
Poor self-rated health[a]	1.75	(0.34)**	0.96	(0.27)
Age (ref = 60-64 years old in 2001)				
65-69 years old (2001)	0.96	(0.23)	0.98	(0.19)
70-74 years old (2001)	1.35	(0.32)	0.85	(0.19)
75-79 years old (2001)	1.54	(0.40)†	0.54	(0.15)*
80-85 years old (2001)	2.86	(0.80)***	1.04	(0.33)
Education (ref = less than high school)				
High school or some college	1.37	(0.27)	1.62	(0.36)*
Bachelor's degree or more	2.63	(0.71)***	1.64	(0.48)†
Race (ref = NH White)				
NH Black	0.38	(0.09)***	0.74	(0.20)
Other racial/ethnic classification	1.06	(0.32)	1.12	(0.36)
Female	1.31	(0.22)	0.86	(0.12)
Logged Income-to-Needs Ratio[a]	0.98	(0.16)	1.08	(0.15)
Logged Wealth[a]	0.87	(0.02)***	1.01	(0.07)
Homeowner	0.33	(0.09)***	1.34	(0.67)
Labor force status (ref = in the labor force)[a]				
Retired	1.57	(0.42)†	1.53	(0.33)†
Disabled	2.61	(1.01)*	2.53	(1.20)*
Homemaker	1.22	(0.43)	1.16	(0.38)
Spouse/partner present in household[a]	0.16	(0.07)***	0.84	(0.44)
Divorced/widowed/separated[a]	0.60	(0.21)	0.85	(0.44)
Metropolitan area	1.04	(0.17)	1.13	(0.20)
Proximity to children (ref = no child)[a]				
Living far from child	1.48	(0.51)	1.38	(0.50)
Living near child	1.37	(0.48)	0.91	(0.33)
Living with child	1.28	(0.48)	0.51	(0.22)
Time period (ref = during recession)				
Pre-recession	0.81	(0.16)	1.68	(0.36)*
Post-recession	0.96	(0.23)	0.60	(0.18)†
Total person-waves		5,830		
Unique persons		1,351		

a. Time-varying covariates

†p < .1. *p < .05. **p < .01. ***p < .001.

CHAPTER V

Conclusion and Discussion

This dissertation examined two understudied yet important topics concerning the drivers and consequences of health inequalities: racism against Asian Americans and residential mobility among older adults. Based on cognitive interviews and a survey experiment with Asian Americans, the first two studies provide insights into how Asian Americans experience and perceive racial discrimination on a widely used survey scale (Everyday Discrimination Scale) and suggest ways to improve the scale. Drawing on data from the Panel Study of Income Dynamics (PSID), the third empirical chapter contributes to a better understanding about the connection between health and residential moves at older ages. This chapter discusses key findings and implications of each chapter and considers directions for future research.

The first empirical chapter examined the extent and causes of measurement non-equivalence of the Everyday Discrimination Scale (EDS) across racial groups, which hinders a clearer understanding of racial discrimination experiences among Asian Americans. I conducted cognitive interviews with 10 Asian American young adults about their question-answering process on the EDS. The results showed that the EDS is limited in capturing some forms of racial discrimination experienced by Asian Americans: assumptions about foreignness and xenophobia; invalidation of interethnic differences; positive and negative stereotypes. In addition, gender and

length of stay in the U.S. play an important role in shaping experiences and perceptions of discrimination among Asian Americans. By examining the measurement non-equivalence found in the EDS, this research contributes to a better understanding about the experiences, perceptions, and reporting of racial discrimination among Asian Americans.

The findings from this study indicate that the main causes of measurement inequivalence found in the EDS stem from 1) different kinds of experiences involving racial discrimination against Asian Americans and 2) how Asians reflect on experiences of discrimination. These findings contribute to an improved understanding about perceived racial discrimination among Asian Americans and ultimately, about the relationship between discrimination experiences and mental health. This study could be complemented by future studies using quantitative methods on the topic to test the generalizability of the findings. In addition, recruiting a more diverse sample would allow for a richer analysis about different experiences of racial discrimination across Asian American subgroups.

In the second empirical chapter, I investigated whether the survey vignettes based on the findings from the first empirical chapter are more effective at capturing the discrimination experiences of Asian Americans than are the vignettes based on the EDS. Furthermore, I examined the connection between discrimination experiences and the level of depression. I also tested whether the level of perceived discrimination and its relationship with depression vary by gender. The results from the survey experiment show that participants report higher levels of discrimination on the "Asian vignettes" than on the "EDS vignettes." This is especially pronounced for female participants. Furthermore, higher levels of perceived discrimination are associated with higher levels of depression, and this relationship is stronger for men than women. Future studies would benefit from examining the mechanisms contributing to the gender

variation in how discrimination affects mental health, and by having a more representative sample covering a wider age range.

These findings suggest that the EDS may be improved by factoring in distinct types of racial discrimination experienced by different racial groups. Furthermore, mental health consequences of discrimination may differ by gender due to coping strategies or implications of racial discrimination for men and women. Similar to the first study, this study contributes to a better understanding about experiences and perceptions of racial discrimination among Asian Americans. This study also extends scholarship on gender differences in racial discrimination experiences and in mental health implications of discrimination.

The last empirical chapter focused on the connection between health and residential moves at older ages, especially moves into different housing tenure. Using data from the 8 waves of the Panel Study of Income Dynamics (PSID) from 2001 to 2015, I employed discrete-time event history analysis to examine whether the presence of acute/chronic health conditions and poor self-rated health are associated with residential moves into owned vs. non-owned housing. The results showed that older adults with acute health conditions and poor health are more likely to move. When examined by type of moves, the presence of acute health conditions and poor health are especially associated with moves into non-owned housing.

These findings suggest that health-driven moves are important not only for the psychological well-being of older adults but also their financial well-being, as moves into different housing tenure have implications for the allocation of their wealth portfolio. This study extends prior research by examining the connection between health status and different *types* of moves (i.e., moves into owned vs. non-owned housing), and with increased generalizability from using longitudinal, nationally representative data from PSID. Future studies would benefit from

taking contextual factors that affect older adult moves into consideration; more detailed analysis of moves into different types of non-owned housing; how residential mobility patterns of older adults change over time in relation with health status, considering the changes in the housing market.

Taken together, findings from the three empirical studies in this dissertation contribute to the understanding about the drivers and consequences of health disparities. Results from the first two chapters suggest the need for a more nuanced understanding and measurement of the experiences and perceptions about racial discrimination among Asian Americans. Given the empirical relevance of the topic in the context of rising discrimination against Asians in recent years, more research about how to build on and improve existing measures of discrimination is needed. Findings from the third empirical chapter suggest the need for more scholarship about different motivations and contexts around residential moves at older ages in order to understand why they move and the different environments they move into.