

Original Research Article

# Does Acculturation Matter? End-of-Life Care Planning and Preference of Foreign-born Older Immigrants in the United States

Eun-Hye Grace Yi, MSW\*<sup>1</sup>

School of Social Work, Indiana University, Indianapolis.

\*Address correspondence to: Eun-Hye Grace Yi, MSW, School of Social Work, Indiana University, 902 West New York Street, Indianapolis, IN 46202. E-mail: [yie@iu.edu](mailto:yie@iu.edu)

Received: October 15, 2018; Editorial Decision Date: May 1, 2019

**Decision Editor:** J. Jill Suitor, PhD

## Abstract

**Background and Objectives:** Advance care planning (ACP) is a critical component of health care affecting the quality of later life. Responding to the increase in the older immigrant population in the United States, this empirical study explored the racial/ethnic gaps in ACP behaviors among older immigrants and examined the end-of-life (EOL) care planning and preferences of foreign-born immigrant older adults focusing on race/ethnicity, acculturation, health need factors, and enabling social factors (financial capability, public assistance, and informal supports) after controlling predisposing factors (sociodemographic characteristics).

**Research Design and Methods:** Using a subsample from the National Health and Aging Trends Study 2011 and 2012, hierarchical logistic regression models of the EOL plan and preferences were examined with 50 multiple imputation data sets ( $n = 232$ ).

**Results:** Descriptive statistics reveal lower ACP engagement of immigrants from racial/ethnic minority groups. In logistic models, however, only Black immigrants were less likely than Whites to have EOL conversations. Among acculturation factors, age at immigration was only negatively associated with having a durable power of attorney for health, but not significantly associated with other ACP behaviors. Instead, health and social factors, primarily need in health and informal support (i.e., number of coresidents and receiving financial help from family members), were associated with different types of ACP components. Receiving public assistance (i.e., receiving Medicaid and SSI) were positively associated with EOL treatment preferences.

**Discussion and Implications:** Older foreign-born immigrants, in general, showed lower ACP engagement than the overall older population. Moreover, minority immigrants were lower on ACP engagement than both White immigrants. This study highlights the need for formal and informal assistance for enhancing EOL planning for older immigrants. Adding to the culturally competent approach, policy efforts should address social and health factors that accrued throughout individuals' life spans and affect older immigrants' EOL preparation and care.

**Translational Significance:** It is important for health service providers and future research serving older immigrants to consider socioeconomic and institutional determinants, which have accrued throughout the lifespan and would affect their end-of-life care planning and preference. Adding to the culturally competent approach, assessing multidimensional needs and enabling factors and accelerating positive family dynamics may help older immigrants, especially those from racially minority groups, be more aware of and engage in advance care planning.

**Keywords:** Advance care planning, End-of-life, Race, Ethnicity, Disparities, Immigration, Older immigrants, Family dynamic, Social support

Along with the aging of the U.S. population in general, the number of older immigrants is also increasing rapidly in the United States. The population of individuals living in the United States who are 65 and older, and who were originally born in foreign countries, has expanded exponentially from around 2.7 million in 1990 to 6 million in 2016, accounting for about 13% of the overall population of the same age cohort (Batalova, 2012; U.S. Census Bureau, 2018). This figure is expected to reach 16 million by 2050, with older immigrants making up around 20% of the older population in the United States (Leach, 2008). At the same time, the racial and ethnic composition of the aging population in the United States has also become more diversified (Ortman, Velkoff, & Hogan, 2014; Perez & Hirschman, 2009). Older adults racial/ethnic minority populations have increased from 6.9 million in 2006, comprising 19% of the overall senior populations, to 11.1 million (23% of the overall older population) in 2016, and this figure is projected to increase up to 21.1 million (28% of the overall older population) in 2030 (Administration on Aging, 2018).

### Foreign-Born Immigrants in the United States

Considering that the United States has been a destination for immigrants around the world since the Colonial Era, not all older immigrants are racial/ethnic minorities, and a significant portion of older people with racial/ethnic minority backgrounds are not foreign born. Population statistics show that European and Canadian immigrants comprised 84% of immigrants living in the United States in 1960, although these figures had decreased by 13.2% in 2016 (Radford & Budiman, 2018). Many studies have documented differences between foreign-born (first-generation) immigrants and the U.S. born (second- and later-generation immigrants). Foreign-born immigrants, especially those who arrive at a relatively late age, face significant challenges in accessing the labor market, public services, and social institutions due to differences in culture and language (Borjas, 1999; Pew Research Center, 2013; Wilmoth, 2012). On the other hand, the U.S.-born immigrants, most of whom are children of the foreign-born (first-generation) immigrants, tend to have more advantages in the host society socially and economically as they are more proficient in the language and more acculturated to the dominant culture than their parents (Pew Research Center, 2013; Rumbaut & Komaie, 2010). Gaps in education, jobs, income, and living arrangement between two generations lead to different social identities and life patterns between two generations (Brewton-Tiayon, 2017; Gurak & Kritz, 2010; Rumbaut & Komaie, 2010). Accordingly, in later life, adverse social and health consequences among older foreign-born immigrants have been identified, such as linguistic isolation (Mutchler & Brallier, 1999), weak social ties and loneliness (Scommegna, 2016; Wu & Penning,

2015), low health insurance coverage (Choi, 2011), high depression and distress (Guo & Stensland, 2018; Sorkin, Pham, & Ngo-Metzger, 2009; Wilmoth, 2012), and longer life expectancy having a cognitive disease (Garcia et al., 2017).

### Advance Care Planning

#### What Is the Advance Care Planning and Why Is It Important?

Advance care planning (ACP) is the process of learning about the types of end-of-life (EOL) care; communicating and making decisions on EOL care that align with the values, goals, and preferences of people who may need EOL medical treatment in the future; and completing health directives and informing family and health care providers of these decisions (Lum, Sudore, & Bekelman, 2015; National Institute on Aging, 2014). An advance directive (AD) is a legal document presenting a plan and preference of EOL care that is usually composed of a living will, durable power of attorney (POA) for health care, and other ACP documents such as DNR orders and physician orders for life-sustaining treatment (National Institute on Aging, 2014). Knowing individuals' EOL care preferences and having ACP is essential not only for the patient and their families but also for care professionals because it promotes quality of care at the end of life and facilitates EOL decision-making for the patients thus giving patients the most peaceful death possible, by suggesting treatment guidelines based on the patients' preferences (Morhaim & Pollack, 2013; Sudore, Schillinger, Knight, & Fried, 2010).

#### Racial/Ethnic Differences in ACP and EOL Care Preferences

Race and ethnicity are complex concepts. Given that race refers to categorized groups based on shared physical or biological characteristics, whereas ethnicity is based on national and cultural commonalities, both are different. Nevertheless, the distinctions between race and ethnicity have been ambiguous in a multiracial and multicultural society like the United States (Perez & Hirschman, 2009). Moreover, for doing health disparity research, considering only one dimension, like race, may cause biased understanding about the role of race due to the underestimation of social and cultural aspects. For such reasons, it seems that much contemporary scientific research, especially those that use nationally representative secondary data, tend to use race and ethnicity interchangeably (e.g., Cobb, Parker, & Thorpe, 2018). In this same vein, this study chose to use the concepts interchangeably by displaying it "race/ethnicity."

Despite the importance of ACP, numerous studies have identified racial/ethnic gaps in ACP engagement among older American populations. Racial/ethnic gaps in EOL

preparation were especially notable among non-Hispanic Black/African Americans (hereinafter referred to as “Black”) and Hispanic/Latino populations (e.g., Carr, 2011, 2012; Harrison, Adrion, Ritchie, Sudore, & Smith, 2016; Hopp & Duffy, 2000; Huang, Neuhaus, & Chiong, 2016). For example, one current study using a nationally representative sample of community-dwelling Medicare beneficiaries aged 65 years and older documented a much lower rate of completion of AD by Black (26.0%) and Hispanic/Latinos (23.0%) when compared with White counterparts (58.6%; Harrison et al., 2016). Asian Americans and Pacific Islanders were also less likely than Whites to have discussed EOL issues (Braun, Onaka, & Horiuchi, 2001; Carr, 2012; Ko & Lee, 2009).

To engage in ACP, it is prerequisite for individuals to be aware of their EOL medical treatment preferences. Many studies found that EOL care preferences, as well as actual treatments, differ according to patients’ racial/ethnic identities. Blacks and Latinos/Hispanics were widely reported that they are substantially more likely to desire life-prolonging treatment than Whites (Barnato, Anthony, Skinner, Gallagher, & Fisher, 2009; Hopp & Duffy, 2000; Kwak & Haley, 2005). Accordingly, these populations have higher health care costs at the end of their lives than Whites (Hanchate, Kronman, Young-Xu, Ash, & Emanuel, 2009; Kelley et al., 2011; Nicholas, Langa, Iwashyna, & Weir, 2011). For example, Kelley and colleagues (2011) found that a Black or a person of Hispanic ethnicity had 1.4–1.5 times higher odds of EOL care expenditures than a White. Using Medicare expenditure data, Hanchate and colleagues (2009) also documented that Black and Hispanics spent 1.3–1.5 times more on EOL care during their last 6 months of life than Whites, and 85% of the observed costs were for the use of intensive treatments.

### Limitations of Previous Studies to Understand ACP Among Older Immigrants

Despite the substantially different characteristics between foreign-born and the U.S.-born immigrants in overall racial-ethnic groups (e.g., Pew Research Center, 2013; Rumbaut & Komaie, 2010), most existing literature on ACP engagement among different racial/ethnic groups tends to mix foreign-born (first-generation) immigrants and U.S.-born (second- and later-generation) immigrants together into one sample. Combining two population groups into one analysis sample and treating them as one population, however, may lead to a biased understanding of foreign-born immigrants.

Foreign-born immigrants seemed to be less prepared for their end of life (Supplementary Appendix 1). When comparing the ACP engagement rates using a nationally representative data, foreign-born older immigrants as a group showed much lower ACP engagement rates (36.8%) than the overall older population in the data (60.2%). Moreover, the ACP engagement rates of foreign-born

immigrants were lower than their U.S.-born counterparts in all race/ethnic groups. Notwithstanding the significant deficiencies among foreign-born older immigrants in many aspects, which may cause the unequal quality of EOL care, to the base of our knowledge, no studies have investigated EOL care planning and preference focusing on foreign-born older immigrant populations. Thus, as a response to this knowledge gap, the current empirical study aimed to explore the overall description of ACP engagement and EOL preferences of foreign-born older immigrants in the United States and to estimate the associations of various contributors that might affect EOL preparation and treatment preferences.

## Theoretical Guideline for Understanding the ACP Gaps Among Older Immigrants

### Ethnicity-Oriented Race Theories

Racial/ethnic differences in ACP behaviors can be understood through a lens of ethnicity-oriented race theories. According to the theories, race and ethnicity shape one’s social identity within certain social and cultural boundaries, on the one hand; while on the other hand, it is also socially constructed through interactions with other people and institutions (Gold & Miller, 2015; Perez & Hirschman, 2009; Winant, 2000). People who are considered racial/ethnic minorities in a given society tend to experience more challenges and discrimination in integrating with the society and interacting with larger systems (Gold & Miller, 2015). These accumulated everyday experiences result in limited information about and access to social and health resources among older minority populations (e.g., Gary, 2005); thus, leading to unique, and sometimes negative, health behaviors, and outcomes (Pascoe & Smart Richman, 2009). In support of this theoretical framework, one systematic review identified factors of racially/ethnically disproportionate engagement in EOL planning. This research identified (a) structural barriers that lead to disbelief about, lack of knowledge, and lower accessibility to the health care system and service providers and (b) unique cultural attitudes among ethnic groups, such as familism, filial piety, and spirituality—any or all of which might contradict the basic idea of ACP, that older people prepare for their deaths beforehand according to their own preferences and written wills (Hong, Yi, Johnson, & Adamek, 2018).

### Acculturation

In studying racial/ethnic gaps in ACP engagement, acculturation has been addressed as a major factor that determines individuals’ awareness of the importance of ACP and completing AD. Acculturation is a long-term process, as individuals from different cultures adapt to the new and typically dominant culture of a host society by modifying the beliefs, norms, and life patterns they have

acquired from their original cultures (Brewton-Tiayon, 2017). To measure the level of acculturation, some studies have used existing scales such as the Vancouver Index of Acculturation (e.g., Gao, Sun, Ko, Kwak, & Shen, 2015; Kelley, Wenger, & Sarkisian, 2010; Kim & Foreman, 2011), whereas other studies have developed their own scales (e.g., Dobbs, Park, Jang, & Meng, 2015). Most scales include variables that assess proficiency and daily use of English, ethnic identity, social ties/interactions in which individuals feel a sense of belonging, and familiarity with the host culture and its norms. These studies have documented that higher acculturation scores are associated with greater awareness and completion of AD (Dobbs et al., 2015; Gao et al., 2015; Kelley et al., 2010; Kim & Foreman, 2011). Some literature that involves one or more proxies, such as the length of stay in the United States and English language ability, have also found that long length of stay in the United States and high proficiency in English are strongly associated with higher awareness and knowledge of ACP and completion of AD (Gao et al., 2015; Sun, Gao, Gao, Li, & Hodge, 2016).

### Social and Health Needs Factors Based on the Health Care Service Utilization Model

Health care settings are the most frequent places that people can access the information about the ACP and get provisions for EOL care decision makings. ACP is a planned behavior aiming to manage and control over the good quality of end of life based on an individual's beliefs and values. Although the goal of completing the ACP is not for promoting an individual's health, the fundamental motivation to pursue maximization of an individual's well-being can be considered identical. In this sense, Andersen's health care service utilization model (1995) can provide a useful conceptual framework to consider potential factors that would affect ACP engagement behaviors and preferences for EOL treatment among older adults. To explain an individual's health care seeking behavior, Andersen's model includes three factors: need factors (i.e., functional and health problems that create a perceived or evaluated needs for health care services), enabling factors (i.e., the means and knowledge that facilitate an individual's search for and access health care resources), and predisposing factors (i.e., characteristics existed before an individual became ill, such as demographic characteristics, socioeconomic status, and health beliefs; Andersen, 1995).

Some studies explored older racial/ethnic minorities' ACP engagement and intention to use EOL care services with the framework of the health service utilization model. These studies tend to reconstruct specific variables enclosed in each factor based on their emphasis. For example, Dobbs and colleagues (2015) found that having more chronic conditions (need factors), having health insurance, and being more acculturated (enabling factors) are associated with the awareness of ACP among Korean-American older

adults. Regarding the willingness of EOL care services, chronic conditions (health needs), acculturation, and prior exposure to hospice (enabling factors) were associated with the intention to use hospice of Korean-American older people (Jang, Chiriboga, Allen, Kwak, & Haley, 2010). Bradley and colleagues (2004) found that the social norm (enabling factor) was associated with Blacks' long-term care services. Borrowing the framework of this model, the current research reframed enabling factors to "enabling social factors." In our model, enabling social factors indicate socioeconomic and institutional determinants, which have accrued throughout the life span and would affect older immigrants' ACP behaviors and intention of using EOL treatment.

### Purpose of the Study

In this study, first, we examined whether racial/ethnic gaps in EOL planning and preference existed among foreign-born older immigrants. Next, given that available research has found that race/ethnicity and acculturation are strong predictors, we examined whether the two factors were similarly associated with foreign-born older immigrant population's ACP and EOL care preferences. Hypothetically, it was assumed that non-White immigrants were less likely to engage in ACP, but more likely to want EOL medical treatment (i.e., life-prolonging treatment when having severe pains or being incapacitated). With regard to levels of acculturation, well-acculturated older immigrants were more likely to be engaged in ACP and to show patterns of EOL treatment preference similar to the dominant group. Finally, borrowing the ideas of Andersen's health service utilization model (1995), we explored the impact of other possible contributors to ACP engagement and EOL treatment preferences. We hypothesized that having a high number of need factors and enabling factors was positively associated with engagement in ACP engagement and desire for EOL treatment, after controlling for predisposing factors. The following questions were investigated:

- (1) How much do the rate of ACP engagement and EOL treatment preferences differ by race/ethnicity among foreign-born older immigrants?
- (2) To what extent are race/ethnicity and acculturation factors associated with the ACP engagement and EOL treatment preferences of older immigrants, after controlling for predisposing factors (i.e., socioeconomic and demographic factors)?
- (3) To what extent are two other factors (i.e., need factors and enabling factors) associated with the three ACP engagement and EOL treatment preferences, after controlling for race/ethnicity, acculturation, and predisposing factors (i.e., socioeconomic and demographic factors)?

## Method

### Data Source

The present study is a secondary data analysis of subsamples from the National Health and Aging Trends Study (NHATS) in 2011 ( $N = 8,245$ ) and 2012 ( $N = 7,075$ ), a longitudinal study of a nationally representative sample of community-dwelling Medicare beneficiaries ages 65 years and older (Kasper & Freedman, 2017). Response rates were 71% in 2011 and 86% in 2012. More information about the data can be found in a recent report (Kasper & Freedman, 2017). Race and immigrant status were asked only in 2011, and 845 foreign-born immigrants were identified in this data, comprising 10.25% of it. This proportion fairly well represents the composition of the older immigrants among the overall older population in the United States (Batalova, 2012; U.S. Census Bureau, 2018). In 2012, the survey randomly selected 2,015 participants from the whole sample ( $N = 7,075$ ) to ask about EOL care plan and preferences. For the analysis, we merged 2 years of data, then drew cases who were identified as foreign-born immigrants in the 2011 survey and who were also selected for the supplemental EOL module in the 2012 survey ( $n = 223$ ; Supplementary Appendix 2). Although participants of the EOL survey were randomly selected out of the overall sample, it is not guaranteed that the selected foreign-born immigrants can represent the total immigrant sample in 2011 data. To check whether the selected sample represents the whole immigrant sample, we tabulated characteristics of overall foreign-born immigrants in 2011 data ( $n = 845$ ) in Supplementary Appendix 3. When we compare two subsamples, overall characteristics of both seem to be similar although there are some minor differences. This study was considered exempt by the Institutional Review Board of Indiana University.

### Measures

#### ACP and EOL care preferences

ACP was measured using three indicators by asking if a respondent (a) had talked to anyone about the types of medical treatment he/she wanted or did not want if she/he becomes seriously ill in the future, (b) made a legal arrangement for someone to make decision about her/his medical care if she/he became unable to make that decision herself/himself, and (c) had a living will or AD. EOL care preference was measured with two questions that asked if the respondent preferred to have life-prolonging treatment (a) when she/he had severe physical pain and (b) when she/he was unable to speak, walk, or recognize other people. All variables were measured as binary (1 = yes; 0 = no).

#### Race/ethnicity

Respondents of the survey were asked to mark one race/ethnicity with which they identified. Based on subjective perceptions of race/ethnicity, the NHATS

database provided information on race/ethnicity with four categories, including non-Hispanic White/Caucasian; non-Hispanic Black/African American; Latino/Hispanic; and non-Hispanic others, including Asians and Pacific Islanders (API), American Indians, and Alaska Natives. Following this categorization, we identified four racial/ethnic groups: White, Black, Latino/Hispanic, and API.

#### Acculturation

Acculturation was measured using two components: English proficiency and age when entered the U.S. English proficiency was initially measured using two items that captured skills in (a) speaking and (b) listening, using a 4-point Likert scale (1 = very well, 4 = not at all). For this analysis, these two variables were combined and coded as a binary variable. That is, if a respondent understood spoken English well or very well and spoke English well or very well, the respondent was coded to have high English proficiency (1 = high; 0 = others). Age at migration was measured as a continuous variable ranging from 0 to 77. An age of 0 implies that a respondent migrated to the United States before his/her first birthday.

#### Health need factors

Need factors were measured with multiple indicators that would induce health care needs. The respondent's self-rated overall health condition was coded as a binary (1 = good or excellent; 0 = fair or poor). The number of chronic diseases was calculated by summing the replies to 10 items that asked whether a respondent had ever had a heart attack, heart disease, high blood pressure, arthritis, osteoporosis, diabetes, lung disease, stroke, dementia, or cancer (potential range: 0–10). Assistance with activities of daily living (ADLs) was measured as a sum of four items that asked whether a respondent had ever received help from others in eating, bathing, using the toilet, or dressing (potential range: 0–4).

#### Enabling social factors

Enabling factors were defined as those that enable older people to gain knowledge about and access to EOL care options. These factors and measured with three components: financial capacity, public assistance, and informal support.

*Financial capacity.* Financial capacity components included income and asset resources, often based on work history, that can assist individuals in remaining financially capable for the duration of future medical and EOL care payments. First, Medigap, a supplemental insurance plan for Medicare, was included. Medigap is designed to cover medical services not covered by Parts A and B and requires a premium payment. Thus, this plan can facilitate older adults' access to health services. Next, regular income sources for general older adults, including Social

Security, pension plans, and retirement accounts, were included. Social Security is a typical income source for retirees; pension plans indicate job-related or union-based benefits; and retirement accounts include 401Ks, 403Bs, individual retirement accounts, and Keoghs. These resources give seniors the financial capacity to obtain health services and information. Home ownership is also considered as an asset, which can be converted into cash to support medical costs. All five items were measured as binary (1 = yes, I or my spouse have it; 0 = no, neither has it).

**Public assistance.** Two binary variables, receipt of Supplemental Security Income (SSI) and receipt of Medicaid, were used to indicate public assistance (1 = yes; 0 = no). SSI is a federal program that provides minimal financial assistance to U.S. citizens with limited income and resources who are 65 years of age or older, disabled, or blind at any age. Medicaid is a means-tested medical insurance program funded by both federal and state governments for those who are financially and medically indigent (Giffords & Garber, 2016).

**Informal support.** The numbers of social network members and the number of persons living with a respondent (continuous variables), and whether a respondent received financial help from other family members or relatives (binary; 1 = yes; 0 = no) were assessed as sources of informal support.

### Predisposing factors

Demographic information and socioeconomic status included gender (1 = male; 0 = female), marital status (1 = married; 0 = all other statuses), and age group (0 = young older adults (OA) [65–74 year old], 1 = middle OA [75–84 year old], and 2 = oldest OA [85 and older]), and education level (0 = below high school, 1 = high school, 2 = college or higher).

### Analysis

**Data analysis.** Descriptive statistics were tabulated for the entire sample to present a summary of the sample characteristics. Chi-square and ANOVA tests were used to assess racial/ethnic differences in study variables, including ACP engagement and EOL preferences. Next, to test whether the magnitude of race/ethnicity and acculturation factors might explain gaps in ACP engagement and EOL treatment preferences, logistic regression models were conducted (Model 1). Last, health needs factors and social enabling factors were added into the Model 1 to investigate the magnitude of the predictors on EOL care plans and preferences (Model 2). Predisposing factors (i.e., sociodemographic variables) were controlled in both models. To evaluate the sensitivity of the analysis models, a logistic regression analysis using incomplete data with the listwise deletion method was conducted. Analytic weights were used for all

logistic regression models, and Stata SE 15 was used to analyze data.

**Missing treatment.** This study conducted multiple imputations (MI) generating 50 MI data sets. Summary statistics of the incompleteness of analysis variables are presented in [Supplementary Appendix 4](#). Missing patterns between English proficiency and POA designation ( $r = .149, p < .05$ ) and AD ( $r = .135, p < .05$ ) showed significant correlation, although the extension of the correlations was moderate. Furthermore, 29 simultaneous instances of missingness in three variables (life-prolonging treatment [LPT] when in severe pain, LPT when unable to talk/walk, and social networks) were observed. After testing for a missing mechanism of the data, the missing pattern was considered to be missing at random because the probability of missing data did not depend on missing values, but rather on other observed values (StataCorp, 2013). In this case, data analysis with complete data would only be able to cause biased and inefficient estimates (Dong & Peng, 2013; Rubin, 1987). The multiple missing cases and their patterns were arbitrary. Thus, this study conducted a chained MI method (MICE) for each analysis model to reduce the sampling error and achieve a more stable analysis outcome.

## Results

### Sample Characteristics

Sample characteristics and comparisons among race groups (reference = White) using chi-square and ANOVA statistics and post hoc tests are summarized in [Table 1](#). The sample includes 223 foreign-born older immigrants: 63 Whites (28.38%), 43 Black (19.37%), 27 Asian and Pacific Islanders (API; 18.1%), and 89 Hispanics/Latinos (40.09%). Overall, 49% were female, 49% were married, 65% were 75 years old or older, and 56% had high school or higher education. In the sample, the proportion of the oldest-old group (85 and older) in African American (18.6%) and APIs (14.8%) was significantly lower than White (46%) or the respondents as a whole (29.6%). Hispanics/Latinos were more likely to have education rates of high school or less (87.60%) when compared with Whites (76.19%) or the respondents as a whole (82.06%).

On average, Black (mean age = 41.79) and API (mean age = 46.93) came to the United States at an older age than Whites (mean age = 31.78). Regarding English proficiency, Hispanics/Latinos (37.5%), and APIs (46.15%) were significantly less likely to possess high-level English skills. Regarding need factors, a relatively low portion of Hispanics/Latinos reported good health status (46.07% for Hispanic/Latino vs. 74.6% for White). Overall, older Black, API, and Latino/Hispanic immigrants possessed fewer financial resource than Whites, whereas they received

**Table 1.** Characteristics of Sample Population, NHATS, 2011–2012 (*n* = 223)

|  | Statistics: Frequency (%) or mean ( <i>SD</i> ) |               |                |                  |               |
|--|---|---------------|----------------|------------------|---------------|
|  | Total   | White         | Black          | API              | Hispanic      |
|  | 223 (100.00)                                    | 63 (28.38)    | 43 (19.37)     | 27 (12.16)       | 89 (40.09)    |
| <b>Predisposing factors</b>                            |   |               |                |                  |               |
| Gender (1 = male)                                      | 114 (51.35)                                     | 35 (55.56)    | 24 (55.81)     | 12 (44.44)       | 43 (48.31)    |
| Marital status (1 = married)                           | 108 (48.65)                                     | 30 (47.62)    | 17 (39.53)     | 18 (66.67)       | 43 (48.31)    |
| <b>Age</b>   |   |               |                |                  |               |
| Young-OA (65–74 years old)                             | 78 (34.68)                                      | 18 (28.57)    | 20 (46.51)     | 10 (37.04)       | 29 (32.58)    |
| Old OA (75–84 years old)                               | 79 (35.43)                                      | 16 (25.40)    | 15 (34.88)     | 13 (48.15)       | 35 (39.33)    |
| Oldest-OA (85 and older)                               | 66 (29.60)                                      | 29 (46.03)    | 8 (18.60)*     | 4 (14.81)*       | 25 (28.09)    |
| <b>Education</b>                                       |   |               |                |                  |               |
| Below high school                                      | 99 (44.39)                                      | 15 (23.81)    | 15 (34.88)     | 12 (44.44)       | 57 (64.04)*** |
| High school diploma                                    | 84 (37.67)                                      | 33 (52.38)    | 21 (48.84)     | 8 (29.63)        | 21 (23.60)**  |
| College degree and higher                              | 40 (17.94)                                      | 15 (23.81)    | 7 (16.28)      | 7 (25.93)        | 11 (12.36)    |
| <b>Acculturation</b>                                   |   |               |                |                  |               |
| Age came to the United States (range: 0–77)            | 36.76 (16.95)                                   | 31.78 (18.65) | 41.79 (14.05)* | 46.93 (13.96)*** | 34.93 (16.12) |
| English proficiency (1 = high)                         | 93 (53.14)                                      | 39 (82.98)    | 9 (64.29)      | 12 (46.15)*      | 33 (37.50)*** |
| <b>Need factors</b>                                    |   |               |                |                  |               |
| Health status (1 = good or higher)                     | 135 (60.81)                                     | 47 (74.60)    | 24 (55.81)     | 23 (85.19)       | 41 (46.07)**  |
| Stayed in hospital (1 = yes)                           | 52 (23.42)                                      | 9 (14.29)     | 15 (34.88)*    | 4 (14.81)        | 24 (26.97)    |
| Number of chronic diseases (range: 0–9)                | 2.48 (1.72)                                     | 2.35 (1.68)   | 2.47 (1.52)    | 2.11 (1.53)      | 2.67 (16.12)  |
| Number of ADLs (range: 0–4)                            | 0.40 (0.90)                                     | 0.37 (0.94)   | 0.56 (1.05)    | 0.15 (0.46)      | 0.44 (0.90)   |
| <b>Enable factors</b>                                  |   |               |                |                  |               |
| <b>Financial capacity</b>                              |   |               |                |                  |               |
| Medigap (1 = yes)                                      | 83 (37.79)                                      | 35 (56.45)    | 7 (16.67)**    | 8 (29.63)        | 32 (37.21)    |
| Social Security (1 = yes)                              | 186 (86.92)                                     | 56 (93.33)    | 34 (89.47)     | 18 (66.67)*      | 78 (87.64)    |
| Pension plan (1 = yes)                                 | 64 (30.19)                                      | 28 (48.28)    | 10 (26.32)     | 4 (15.38)*       | 22 (24.72)*   |
| Retirement accounts (1 = yes)                          | 44 (21.15)                                      | 17 (29.82)    | 10 (26.32)     | 3 (12.00)        | 14 (15.91)    |
| Home ownership (1 = yes)                               | 109 (51.67)                                     | 42 (73.68)    | 19 (46.34)*    | 9 (33.33)**      | 38 (45.24)**  |
| <b>Public assistance</b>                               |   |               |                |                  |               |
| Medicaid (1 = yes)                                     | 85 (38.81)                                      | 7 (11.29)     | 21 (50.00)***  | 16 (59.26)***    | 41 (46.59)*** |
| SSI (1 = yes)  | 51 (24.06)                                      | 6 (10.00)     | 8 (20.51)      | 12 (44.44)**     | 25 (29.07)*   |
| <b>Informal support</b>                                |   |               |                |                  |               |
| Number of social network (range: 0–5)                  | 1.88 (1.25)                                     | 1.83 (1.14)   | 1.78 (1.44)    | 1.82 (1.22)      | 1.97 (1.27)   |
| Number of family members living together (range: 0–13) | 1.48 (1.60)                                     | 1.16 (1.96)   | 1.61 (1.62)    | 1.89 (1.63)      | 1.53 (1.26)   |
| Financial help from family (1 = yes)                   | 31 (14.29)                                      | 2 (3.33)      | 9 (21.43)*     | 5 (18.52)        | 15 (17.05)    |
| <b>EOL plan and preferences</b>                        |   |               |                |                  |               |
| EOL conversation (1 = yes)                             | 81 (36.82)                                      | 34 (55.74)    | 10 (23.26)**   | 12 (44.44)       | 25 (28.09)**  |
| POA (1 = yes)  | 74 (34.10)                                      | 31 (51.67)    | 10 (23.81)*    | 7 (25.93)        | 26 (29.89)*   |
| AD (1 = yes)   | 77 (35.16)                                      | 37 (59.68)    | 9 (21.43)**    | 6 (22.22)*       | 25 (28.74)**  |
| LPT when having severe pain (1 = yes)                  | 59 (37.58)                                      | 9 (21.43)     | 10 (33.33)     | 11 (61.11)*      | 29 (43.28)    |
| LPT when unable to talk/walk (1 = yes)                 | 53 (32.32)                                      | 6 (13.04)     | 10 (31.25)     | 11 (57.89)**     | 26 (38.81)*   |

Notes: ADL = activities of daily living; AD = advance directive; EOL = end-of-life; LPT = life-prolonging treatment; SSI = Supplemental Security Income.

\*\*\**p* < .001, \*\**p* < .01, \**p* < .05, +*p* < .10.

more public assistance. Only 17% of Blacks had Medigap, 33% of APIs did not receive Social Security, and only 16% of APIs and 25% of Hispanics/Latinos had a pension plan. Homeownership rates for older members of all three racial/ethnic minority immigrant groups were significantly lower than for Whites (less than 50% for each minority group vs. 73.68% for Whites). According to the gaps in economic resources, around 50%–60% of racial/ethnic minority immigrants received Medicaid, whereas only 11% of Whites immigrants received public assistance. A greater proportion of APIs (44.44%) and Hispanic/Latinos (29.07%) received SSI than Whites (10.00%). Informal support factors showed no significant differences between racial/ethnic groups.

EOL preparation and preference showed significant differences by race/ethnicity. Although over half of Whites completed the three domains of EOL planning (having conversations about EOL, having a designated POA, and completing AD), older immigrants among the other three minor race/ethnic groups showed fewer completion rates between 21% and 44% when compared with White. In particular, Black and Hispanics/Latinos showed significantly lower engagement (less than 30%) in all three areas of ACP. Interestingly, APIs had relatively more EOL conversations (44%) but had fewer POAs and ADs (25.93% and 22.22%, respectively). Regarding EOL treatment preferences, APIs showed the highest rate of EOL treatment preference. Over half of APIs desired to have LPT in situations in which they might have severe pain, be unable to speak and/or walk, or have cognition problems. Hispanics/Latinos also showed higher preference than Whites for LPT treatment if they were to have difficulty in speaking, walking, or recognizing others (38.81% for Hispanic/Latinos vs. 13.04% for White).

### Predictors of EOL Care Planning and Preferences

Collinearity diagnostics showed that tolerance scores for all variables were higher than 0.2, which indicates no multicollinearity issues among the explanatory variables (Hair, Black, Babin, & Anderson, 2010). Logistic regression models of ACP and EOL care preference with 50 data sets of MI are summarized in Tables 2 and 3. As seen in Table 2, which only considered the race/ethnicity and acculturation factor (Model 1), Blacks showed significantly lower odds of engagement in discussion about EOL care and completing AD, and being Hispanic/Latino was negatively associated with engagement in EOL discussions and AD at a marginal level. Older API immigrants were more likely to favor EOL treatments when they have severe pains. Regarding acculturation factors, age at immigration was found to be negatively associated with ACP engagement, especially having POA and AD, and English proficiency had a negative association with EOL treatment when they are unable to do normal functions.

When compared with Model 1, the effects of race/ethnicity and acculturation in EOL planning and preferences

were less explicitly identified in the full model (Table 3). Only Blacks were statistically less likely to have EOL conversations (odds ratio [OR] = 0.22, 95% confidence interval [CI]: 0.07, 0.74). With regard to acculturation, as the age at immigration increased 1 year, there was a 5% reduction in the odds in having POA for older immigrants (OR = 0.95, CI: 0.92, 0.98), but no significant changes in the odds in AD completion. Immigrants with higher English proficiency were less likely to prefer LPT when they cannot function normally (OR = 0.09, CI: 0.02, 0.46).

Among need factors, each additional chronic disease increased the odds of AD completion by 1.47 times (CI: 1.11, 1.95) and preference for LPT by 1.54 times (OR = 1.54, CI: 1.08, 2.18). Greater need for assistance with daily activities increased the odds of designating a POA by 1.89 (CI: 1.17, 3.05). Better health status was associated with a preference for LPT (OR = 4.61, CI: 1.17, 18.22). Components of enabling factors were differently associated with ACP and EOL treatment preferences. In general, the financial capability component did not greatly affect EOL planning or preference. However, Medigap was positively associated with designating a POA (OR = 2.66, CI: 1.09, 6.48), and homeownership was negatively associated with a preference for LPT when having severe pains (OR = 0.27, CI: 0.08, 0.94). Public assistance was explicitly associated with LPT preference. Older immigrants who received Medicaid were more likely to want treatment in cases of severe pain (OR = 3.23, CI: 1.02, 10.26), and those who received SSI were more likely than individuals with no SSI to want LPT in cases when they cannot talk/walk (OR = 7.49, CI: 2.14, 29.57). Regarding the informal support, having more family members living together reduced the odds of EOL conversations (OR = 0.73, CI: 0.54, 0.97) and ADs (OR = 0.74, CI: 0.56, 0.98) but increased the preference for LPT in cases of severe physical pains (OR = 1.39, CI: 1.10, 1.76). Receiving financial help from family or relatives increased the odds of EOL discussions by 3.9 times (CI: 1.12, 13.62) and 6.54 times for designating a POA (CI: 1.86, 23.02). Regarding demographic characteristics, being married was positively associated with the desire for LPT in cases of being unable to function normally (OR = 10.18, CI: 2.47, 41.92). Furthermore, older immigrants with higher education levels than below high school were more likely to have EOL discussions with others: high school diplomas (OR = 2.81, CI: 1.14, 6.95) and college or higher degree (OR = 3.78, CI: 1.28, 11.14).

For sensitivity test of the models, the results of a logistic regression analysis using incomplete data with the listwise deletion method are presented for comparison (Supplementary Appendix 5). The overall patterns and directions of the coefficients were similar in both cases, although the magnitude and significance level in some models varied. The gaps in odds ratio and different significance levels may be attributed to the not-completely random missing pattern of the incomplete data (i.e., non-missingness in complete at random).

**Table 2.** Logistic Regression of EOL Care Planning and Preference Model: Race and Acculturation Model With Multiple Imputation Data (Model 1;  $n = 223$ ,  $m = 50$ )

|                                      | Odds ratio (95% confidence interval) |                      |                     |                             |                             |
|--------------------------------------|--------------------------------------|----------------------|---------------------|-----------------------------|-----------------------------|
|                                      | EOL care planning                    |                      | EOL care preference |                             |                             |
|                                      | EOL conversation                     | POA                  | AD                  | LPT when having severe pain | LPT when unable to function |
| Race/ethnicity (ref. = White)        |                                      |                      |                     |                             |                             |
| Black                                | 0.27* (0.10, 0.75)                   | 0.58 (0.21, 1.61)    | 0.32* (0.11, 0.91)  | 1.05 (0.30, 3.65)           | 1.55 (0.37, 6.42)           |
| API                                  | 1.05 (0.34, 3.26)                    | 1.04 (0.29, 3.71)    | 0.39 (0.10, 1.50)   | 5.37* (1.41, 20.42)         | 2.50 (0.66, 9.45)           |
| Hispanic                             | 0.45* (0.19, 1.06)                   | 0.76 (0.31, 1.85)    | 0.46* (0.19, 1.15)  | 0.86 (0.29, 2.59)           | 1.22 (0.37, 4.08)           |
| Acculturation                        |                                      |                      |                     |                             |                             |
| High English proficiency             | 0.75 (0.29, 1.94)                    | 1.18 (0.41, 3.39)    | 2.37* (0.90, 6.22)  | 0.48 (0.16, 1.39)           | 0.17** (0.05, 0.56)         |
| Age came to the United States        | 0.98* (0.96, 1.00)                   | 0.95*** (0.96, 1.00) | 0.98* (0.95, 1.00)  | 1.01 (0.99, 1.04)           | 1.00 (0.97, 1.03)           |
| Predisposing factors                 |                                      |                      |                     |                             |                             |
| Male                                 | 0.52* (0.24, 1.12)                   | 0.66 (0.31, 1.40)    | 0.43* (0.19, 0.98)  | 0.54 (0.24, 1.21)           | 0.49 (0.17, 1.37)           |
| Married                              | 1.16 (0.51, 2.64)                    | 1.62 (0.73, 3.56)    | 1.95 (0.83, 4.59)   | 1.31 (0.54, 3.22)           | 4.14** (1.46, 11.77)        |
| Age (ref. = 65–74)                   |                                      |                      |                     |                             |                             |
| 75–84                                | 1.14 (0.49, 2.63)                    | 2.12* (0.87, 5.16)   | 2.38* (0.96, 5.89)  | 1.46 (0.62, 3.43)           | 1.45 (0.56, 3.71)           |
| 85 and older                         | 1.83 (0.74, 4.54)                    | 3.98** (1.58, 10.04) | 3.52** (1.38, 8.98) | 1.25 (0.43, 3.67)           | 2.00 (0.61, 6.61)           |
| Education (ref. = below high school) |                                      |                      |                     |                             |                             |
| High school                          | 2.48* (1.04, 5.89)                   | 1.75 (0.67, 4.61)    | 1.19 (0.45, 3.13)   | 0.47 (0.19, 1.17)           | 0.95 (0.32, 2.80)           |
| BA and higher                        | 3.61* (1.26, 10.33)                  | 2.21 (0.72, 6.85)    | 1.34 (0.44, 4.10)   | 0.54 (0.17, 1.73)           | 1.29 (0.36, 4.72)           |

Notes: AD = advance directive; EOL = end-of-life; LPT = life-prolonging treatment.  
 \*\* $p < .01$ , \* $p < .05$ , \* $p < .10$ .

**Table 3.** Logistic Regression of EOL Care Planning and Preference Models With Multiple Imputation Data: Full Model (Model 2;  $n = 223$ ,  $m = 50$ )

| Odds ratio (95% confidence interval)     |                     |                      |                     |                             |                             |  |
|--|---------------------|----------------------|---------------------|-----------------------------|-----------------------------|--|
|  | EOL care planning   |                      |                     | EOL care preference         |                             |  |
|  | EOL conversation    | POA                  | AD                  | LPT when having severe pain | LPT when unable to function |  |
| Race/ethnicity (ref. = White)            |                     |                      |                     |                             |                             |  |
| Black                                    | 0.22* (0.07, 0.74)  | 0.56 (0.14, 2.17)    | 0.31* (0.09, 1.12)  | 0.85 (0.18, 3.97)           | 2.29 (0.36, 14.62)          |  |
| API                                      | 1.77 (0.42, 7.52)   | 1.29 (0.31, 5.39)    | 0.43 (0.10, 1.91)   | 3.70 (0.75, 18.13)          | 2.46 (0.45, 13.54)          |  |
| Hispanic                                 | 0.41* (0.16, 1.04)  | 0.73 (0.26, 2.03)    | 0.46 (0.16, 1.29)   | 0.92 (0.26, 3.17)           | 2.19 (0.53, 9.12)           |  |
| Acculturation                            |                     |                      |                     |                             |                             |  |
| High English proficiency                 | 0.76 (0.24, 2.41)   | 0.88 (0.21, 3.70)    | 2.48 (0.80, 7.71)   | 0.69 (0.18, 2.56)           | 0.09** (0.02, 0.46)         |  |
| Age came to the United States            | 0.99 (.96, 1.01)    | 0.95** (0.92, 0.98)  | 0.98 (0.95, 1.00)   | 1.00 (0.98, 1.03)           | 0.99 (0.96, 1.03)           |  |
| Need factors                             |                     |                      |                     |                             |                             |  |
| Good or higher health                    | 0.77 (0.32, 1.89)   | 1.62 (0.61, 4.31)    | 1.56 (0.59, 4.14)   | 2.32 (0.76, 7.03)           | 4.61* (1.17, 18.22)         |  |
| Stayed in hospital                       | 1.15 (0.45, 2.93)   | 0.87 (0.32, 2.35)    | 0.82 (0.29, 2.31)   | 0.84 (0.26, 2.74)           | 1.30 (0.39, 4.28)           |  |
| Number of chronic disease                | 1.11 (0.86, 1.43)   | 1.26 (0.96, 1.66)    | 1.47** (1.11, 1.95) | 0.95 (0.69, 1.29)           | 1.54* (1.08, 2.18)          |  |
| Number of ADLs                           | 1.37 (0.86, 2.20)   | 1.89** (1.17, 3.05)  | 1.51* (0.96, 2.39)  | 0.78 (0.46, 1.34)           | 0.84 (0.44, 1.58)           |  |
| Enabling factors                         |                     |                      |                     |                             |                             |  |
| Financial capacity                       |                     |                      |                     |                             |                             |  |
| Medigap                                  | 1.19 (0.51, 2.76)   | 2.66* (1.09, 6.48)   | 1.83 (0.77, 4.36)   | 0.86 (0.31, 2.35)           | 0.79 (0.24, 2.59)           |  |
| Social Security                          | 2.68 (0.75, 9.60)   | 0.88 (0.17, 4.52)    | 1.47 (0.34, 6.41)   | 1.35 (0.37, 4.95)           | 4.22* (0.78, 22.99)         |  |
| Pension plan                             | 1.64 (0.64, 4.19)   | 0.68 (0.28, 1.66)    | 0.87 (0.34, 6.41)   | 2.97* (0.99, 8.92)          | 1.73 (0.48, 6.24)           |  |
| Retirement accounts                      | 0.74 (0.25, 2.18)   | 2.00 (0.68, 5.91)    | 1.03 (0.34, 2.21)   | 1.78 (0.48, 6.61)           | 0.69 (0.13, 3.64)           |  |
| Home ownership                           | 1.87 (0.67, 5.24)   | 1.13 (0.36, 3.51)    | 1.59 (0.59, 4.30)   | 0.27* (0.08, 0.94)          | 0.41 (0.11, 1.54)           |  |
| Public assistance                        |                     |                      |                     |                             |                             |  |
| Medicaid                                 | 0.86 (0.29, 2.57)   | 0.34 (0.09, 1.27)    | 0.84 (0.30, 2.34)   | 3.23* (1.02, 10.26)         | 0.87 (0.26, 2.93)           |  |
| SSI                                      | 1.59 (0.47, 5.36)   | 1.05 (0.22, 4.93)    | 1.44 (0.43, 4.78)   | 2.00 (0.59, 6.76)           | 7.95** (2.14, 29.57)        |  |
| Informal support                         |                     |                      |                     |                             |                             |  |
| Number of social network                 | 0.91 (0.62, 1.32)   | 1.39* (0.98, 1.97)   | 0.81 (0.56, 1.16)   | 0.89 (0.61, 1.31)           | 0.66* (0.41, 1.05)          |  |
| Number of family members living together | 0.73* (0.54, 0.97)  | 0.77 (0.54, 1.09)    | 0.74** (0.56, 0.98) | 1.39** (1.10, 1.76)         | 1.20 (0.92, 1.57)           |  |
| Received financial support from family   | 3.90* (1.12, 13.62) | 6.54** (1.86, 23.01) | 3.03* (0.97, 9.46)  | 3.12* (0.95, 10.23)         | 0.80 (0.25, 2.61)           |  |
| Predisposing factors                     |                     |                      |                     |                             |                             |  |
| Male                                     | 0.54 (0.23, 1.29)   | 0.77 (0.31, 1.91)    | 0.46* (0.19, 1.11)  | 0.45* (0.18, 1.14)          | 0.36* (0.11, 1.20)          |  |
| Married                                  | 1.03 (0.36, 2.92)   | 1.09 (0.36, 3.24)    | 2.23 (0.78, 6.36)   | 1.49 (0.51, 4.40)           | 10.18** (2.47, 41.92)       |  |
| Age (ref. = 65-74)                       |                     |                      |                     |                             |                             |  |
| 75-84                                    | 1.10 (0.47, 2.58)   | 2.34* (0.91, 6.02)   | 2.43* (0.98, 6.04)  | 1.73 (0.66, 4.56)           | 1.51 (0.50, 4.54)           |  |
| 85 and older                             | 1.23 (0.47, 3.23)   | 2.26 (0.77, 6.66)    | 2.40 (0.82, 7.04)   | 2.49 (0.72, 8.61)           | 3.01 (0.72, 12.66)          |  |
| Education (ref. = below high school)     |                     |                      |                     |                             |                             |  |
| High school                              | 2.81* (1.14, 6.95)  | 1.99 (0.64, 6.15)    | 1.37 (0.50, 3.73)   | 0.31* (0.11, 0.86)          | 1.16 (0.31, 4.31)           |  |
| BA and higher                            | 3.78* (1.28, 11.14) | 2.39 (0.60, 9.42)    | 1.35 (0.41, 4.38)   | 1.02 (0.26, 4.01)           | 4.07 (0.56, 29.70)          |  |

Notes: ADL = activities of daily living; AD = advance directive; API = Asians and Pacific Islanders; EOL = end-of-life; LPT = life-prolonging treatment; POA = power of attorney; SSI = Supplemental Security Income. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ ,  $p < .10$ .

## Discussion

This study aimed to navigate racial/ethnic gaps in EOL preparation and treatment preference among older immigrants and to examine potential predictors of EOL preparation behaviors. When we look into the descriptive statistics by race/ethnicity, ACP engagement rates of older immigrants in racial/ethnic minorities are far below the overall average as well as White immigrants, whereas those of White are close to the overall average of the nonimmigrant Whites (Supplementary Appendix 1). Regarding EOL treatment preferences, APIs and Latino/Hispanics were more likely to want life-sustaining treatment. In addition, final logistic regression model revealed diminished effects of race/ethnicity and acculturation on ACP engagement and EOL treatment preferences. Instead, health needs and enabling factors explained the gaps in EOL care behaviors among older immigrants.

Sharing individual older adult's EOL care plans and preferences with their families or relatives is a starting point of having documented ACP. In this sense, health care professionals need to pay attention to the lack of EOL conversation among older Black immigrants. Given that Black immigrants are more proficient in English ( $\%_{(\text{Black})} = 64.29\%$ ;  $\%_{(\text{total})} = 53.14\%$ ) and not significantly less educated than average immigrants, the acculturation patterns of Black immigrants in this study correspond to previous research that documenting higher English language skills among Africa-originated immigrants (Pew Research Center, 2013). Thus, the acculturation hypothesis assuming that a higher acculturation level will lift ACP engagement among older immigrants in general was not completely confirmed by this analysis. Based on an ethnicity-oriented race theory, another possible explanation for the ACP gap could be a systematic or cultural barrier for Black immigrants attempting to integrate into the main society, which may delay access to ACP engagement in later life. Bullock (2006, 2011) highlighted the structural obstacles Blacks face in using health care services and their distrust toward health professionals and certain social systems. Due to the heterogeneity of their populations, findings from Black communities may not perfectly support the current study's findings. Unfortunately, this study could not include cultural and structural aspects in its analysis models due to the limitation of the data. Nevertheless, delineating discriminatory factors in the system may be helpful in understanding the ACP engagement gap, especially with regard to Black immigrants.

Next, acculturation levels can predict the part of ACP behaviors and EOL preferences of foreign-born immigrants. Whereas previous studies tend to consider acculturation as a key factor in ACP engagement among ethnic minorities (e.g., Bito et al., 2007), this study identified limited effects of acculturation in POA. The positive association between early age at immigration and POA designation may indicate that if later-in-life decisions see designating a POA as a

complicated legal process requiring professional knowledge of laws and working with a lawyer, the immigrants may feel emotionally and financially burdened by the process and delay EOL care planning. However, no components of acculturation factors are accounted for actual EOL discussion and AD completion.

In addition, socioeconomic and health factors that accrued throughout individuals' life spans are significantly associated with their EOL behaviors and preferences. With regard to informal support, family dynamics are a critical factor in determining older immigrants' ACP. The findings of this study confirm the findings of Thomas, Liu, and Umberson (2017), which delineate the consequential roles of quality and diversity in family relationships on individual older adults' overall well-being. Receiving financial help from family can be interpreted not just as monetary provision that helps older immigrants afford the costs of living and health expenses, but also as a demonstration of closeness among family members. On the other hand, living with many family members was negatively associated with EOL discussion and AD completion. Although it is relatively common for non-White immigrants to live in extended-family households (Glick & Van Hook, 2002; Heyman & Gutheil, 2010), this does not necessarily indicate family cohesion. Instead, it may be an indication of dependency caused by a paucity of financial resources (Gurak & Kritz, 2010), which can potentially lead to family conflicts through different levels of acculturation between generations (Wilmoth, 2012).

Interestingly, receipt of public assistance was related to EOL treatment preference. Why is it that older immigrants receiving Medicaid or SSI are more likely to want life-prolonging treatment? One possible hypothesis is a reduction in economic burden to their families for care expenses. Despite Social Security and Medicare, financial needs in daily life remain a challenge for older immigrants (Burr, Gerst, Kwan, & Mutchler, 2008). As Medicaid provides more comprehensive coverage, including reimbursement for long-term care and nursing home services (Giffords & Garber, 2016), Medicaid beneficiaries may be more likely to expect EOL treatment. Expanding this hypothesis, the dual eligibility issue can be considered. About 7 million seniors are dual eligible for both Medicare and Medicaid (Center for Medicare & Medicaid Services, 2017). When relatively low-income older adults are eligible for both programs, but Medicare premium plans are unaffordable, these individuals tend to use Medicaid as supplemental insurance for long-term and nursing home care (Giffords & Garber, 2016), thus experiencing relief from medical expenses.

Regarding the health need factors, this study found curious results about preferences for EOL treatment. Older immigrants with the subjectively healthier condition were more likely to want life-prolonging treatment (LPT) when their physical and cognitive functions do not work normally; however, those with more chronic disease were also

more likely to want the LPT under the same condition. Such contradicting findings were recognized in a previous study. One study that examined concerns and preferences for EOL treatment using a national sample found that older people with good health were less likely to have worry about taking EOL treatment, whereas those having frequent pains/discomforts were more likely to want palliative drugs to reduce the pain (Barnato et al., 2009). With limited theories or evidence that support our findings, it is assumable that, because healthy older adults tend to have less fear or concern about taking much EOL treatment, their preferences for EOL care may incline to maintain their health status for longevity. On the other hand, those who have multiple chronic diseases may already suffer from pains and discomforts physically or mentally; thus, the condition that they cannot function normally may not be considered severer for them because that situation may not bring more significant complications in their overall well-being. Consequently, older people with multiple chronic diseases may also want to prolong their life. More research will be needed to navigate the relationship between health factors and preference for the EOL treatments.

Some limitations of this study should be noted. First, there were some restrictions in the data set. Although the NHATS is nationally representative data, it does not include non-Medicare elderly beneficiaries or undocumented immigrants. Furthermore, because the survey was conducted in English and Spanish, there is a possibility that immigrants who are not very familiar with either language may not have been included in the survey regardless of efforts to include proxy respondents who could help answer or translate for the target participants. Although we used the weights provided by data set to reduce sampling bias, the potential for a lack of representativeness is unavoidable. Also, potential direct contributors on ACP completion such as knowledge about the ACP (e.g., Sun, Bui, et al., 2016) or previous exposure to the EOL care (e.g., Jang et al., 2010) were not included in the analysis models due to the limitation of data. In addition, regarding EOL treatment, the data we used considered two specific conditions: experience of severe pain and loss of physical and/or cognitive function. Thus, our study cannot reflect all the different terminal conditions that the ACP assumes in general. Finally, this study did not consider diversity within different ethnic groups. Grouping diverse ethnic groups into one race/ethnicity may cause underestimation of within-group differences.

Despite these limitations, this study contributes additional reliable evidence to aid our understanding of older immigrants' EOL planning behaviors and treatment preferences. In addition to examining racial gaps and acculturation effects, this study sheds light on social and health factors, especially informal support and public assistance, and explains how they are associated with individual EOL care planning behaviors and preferences. Further research regarding the role of structural and cultural factors in older immigrants' ACP engagement would be worthwhile. The

findings of this study suggest that health service providers in EOL care settings need to embrace family members in the ACP process and accelerate positive family dynamics. It is also recommended that policy efforts address multiple social and institutional aspects that affect older immigrants' ACP engagement beyond the use of culturally competent approaches.

## Supplementary Material

Supplementary data are available at *Innovation in Aging* online.

## Funding

None reported.

## Conflict of Interest

None reported.

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