COMMENTARY

Identifying life course mechanisms and pathways that influence cognitive health among Asian and Latina/o/x older adults

Population aging and the increase of adults migrating at older ages have led to rapid growth in the foreign-born population aged 65 years and older (hereafter, older adults) in the USA (Mizoguchi et al., 2019). In 2020, an estimated 14.3% of the older adult population were foreign-born. U.S. Census estimates show that the foreign-born population will increase to 20.5% by 2040 and 23.3% by 2060. These demographic changes are concerning since mounting evidence indicates that foreign-born adults are more likely to develop dementia than their U.S.-born counterparts and may spend more of their older adult years living with this condition (Garcia et al., 2019). Additionally, racial/ethnic minorities are projected to comprise 44.9% of U.S. older adults by 2060 and will include a large proportion of individuals affected by Alzheimer's disease or related conditions (U.S. Census Bureau, 2018). These demographic changes underscore the challenges related to who will care for the growing number of older adults with dementia, given the relative decline of younger adults in the decades ahead (Aranda et al., 2021). Thus, the rapid increases in the diverse aging population suggest that there is an urgent need to understand the risks that immigration, nativity status, and racial stratification impose that influence late-life cognition, including the physiological and psychological mechanisms that play a critical role in health across the lifespan and generations.

In the 2022 Alzheimer's Disease-Related Dementias (ADRD) Summit, one of the priority foci emphasized for health equity in ADRD included identifying life course and multi-level mechanisms and pathways that produce ADRD inequities (González and Zissimopoulos, 2022). Life course perspectives emphasize that health and health-related outcomes are shaped by biological, environmental, and social factors (whether independently, cumulatively, or interactively) across the life course and generations (Kuh et al., 2003). For example, previous studies of older immigrant health in the USA have emphasized the importance of biological and historical timing in the migration process that differentiate immigrant experiences, such as health selectivity at the time of migration and acculturation since arrival (Montes de Oca et al., 2011). Supplementary to the life course perspective, multi-level approaches consider how place-based effects (e.g. local economic, service, social, natural, and policy environments) are fundamental causes of health and health disparities (Browning et al., 2016). Indeed, racism and race-based residential segregation have shaped how material and flexible resources that matter for health has been historically and presently allocated to sustain and undergird racial/ethnic inequities in the USA (Williams and Collins, 2001).

However, often overlooked in most research is that racial/ethnic minorities and immigrants in the USA are heterogeneous and diverse in terms of their sociodemographic characteristics, motivations to migrate (among foreign-born populations), and acculturation experiences that are nested within systemic and structural contexts (e.g. historical, environmental, and geographic contexts). These factors can potentially influence modifiable risk factors for dementia, including education, hypertension, hearing impairment, smoking, obesity, depression, physical inactivity, diabetes, and low social contact (Livingston et al., 2020).

The results presented by Meyer et al. (2020) in International Psychogeriatrics are significant as they highlight how age at migration and generational status (e.g. second generation American - children of immigrants) are important structural and social determinants of older adult cognitive health in two large racial and ethnic minority populations in the USA – Asians and Latina/o/xs. Specifically, their findings suggest that age of migration and generational status among Asian and Latina/o/x older adults have differential domain-specific effects on cognitive function that get masked under the umbrella of global cognitive function. Their major finding is that foreign-born Asian and Latina/o/xs who migrated to the USA at older ages (aged ≥ 19 years) exhibited lower cognitive scores, particularly in semantic memory and executive function, relative to their U.S.-born counterparts, especially third generation Asians and Latina/o/xs, respectively. Meyer et al. highlight that

semantic memory and executive function depend on accumulated knowledge, which is impacted by factors such as education. Accumulated knowledge is a form of an individual and/or group's availability of flexible resources that can be used to maintain health (Phelan, *et al.*, 2010). Another study published in *International Psychogeriatrics* underscores how more extended opportunities for individuals to engage in the learning process benefit cognitive reserve (Mohammad *et al.*, 2020). Mohammad *et al.*'s (2020) study demonstrates that respondents with "distributed education" exhibited higher scores in episodic memory and name recognition measures, suggesting that a respondent's prolonged exposure to being involved in the learning process across the lifespan results in improved cognitive reserve. Thus, continuing education among foreign-born older adults in the USA may be an effective public health policy intervention to delay or slow cognitive decline, in addition to intervention strategies tailored based on education level and are culturally appropriate as highlighted recently by other researchers in *International Psychogeriatrics* (Radanovic, 2020; Yuan *et al.*, 2018). Taken together, researchers should consider potential life course and multi-level influences that influence cognitive health among foreign-born populations, including the cumulative exposures of having lived in their respective country of origin before arrival to the USA and their experiences once living in the USA. These considerations can generate additional hypotheses that link age at migration, generational status, and cognitive health that can be potentially tested.

While the Meyer *et al.* study expands on the determinants of cognitive health among two large racial/ethnic populations in the USA, we must consider the strengths and limitations of the population-based study they derive their findings. Meyer *et al.* used baseline data from the Kaiser Healthy Aging and Diverse Life Experiences (KHANDLE) Study, a life course cohort study of disparities in cognitive aging and ADRD in racially and ethnically diverse individuals aged 65 and over. The KHANDLE Study stands out from other dementia research studies in the USA by including a diverse sample and equal proportions of Asian, Black, Latina/o/x, and White individuals of varying educational backgrounds. This underscores KHANDLE as an important data contribution, given the continuous growth in the racial/ethnic diversity of the older adult population in the USA and the urgent public health burden of cognitive decline and ADRD. The findings from using the KHANDLE can provide vital information for research and clinical applications of cognitive tests, identifying individuals at higher risk for cognitive impairment and improving the health and well-being of individuals using culturally relevant and appropriate measures. However, given

some of the limitations in KHANDLE's sampling strategy, there is room for improvement in future data collection efforts to achieve data and health equity. Notably, the KHANDLE included participants with long-term access to integrated health care (i.e. usual care), which is not the norm for the general population, especially racial and ethnic minorities across the USA. Moreover, many populations disproportionately rely on acute illness care to meet basic and primary care needs, suggesting a missed opportunity for ADRD research recruitment efforts (Gilmore-Bykovskyi *et al.*, 2019). Another consideration is that the KHANDLE sample draws on individuals from urban areas in Northern California, which limits our understanding of diverse populations living in rural contexts (e.g. Native American/Alaskan Native populations), which are generally understudied in ADRD research. Nonetheless, Meyer *et al.* used the strengths of the KHANDLE to examine the factors related to cognitive health within Asian and Latina/o/xs, moving away from using White Americans as the "control group" (Whitfield and Baker-Thomas, 1999).

Prior health disparities research examining the important sociocultural factors contributing to cognitive health has tended to communicate the cognitive health of immigrant and racial/ethnic subgroups in the USA from a comparative framework. Factors like acculturation and language proficiency are often examined as predictors of cognitive health in immigrant subgroups – factors relevant for certain subgroups in the USA compared to the "gold standard" of health: White Americans. One of the most critical and trailblazing decisions Meyer *et al.* make is in choosing the inclusion criteria and comparison groups to examine the effect of immigration and immigrant status on late-life cognition. The *Healthy Immigrant Effect*, or the idea that those born outside of the USA are healthier and *may* have better health, despite having lower education, income, and wealth compared to their counterparts born in the USA, has been a popular idea in health disparities research that is not well understood in the context of cognitive outcomes. Meyer *et al.* point out that Asians and Latina/o/x groups are the largest growing immigrant groups in the USA that have very different patterns of migration that may impact cognitive health differently. Centering Asian and Latina/o/x immigrant groups in the USA allows the authors to test the hypothesis that the sociocultural differences in migration patterns contribute to the variation in cognitive function between Asian and Latina/o/x older adults – with no intention of centering or contrasting their cognitive health to that of their White American peers.

In the larger context, much of the literature on race/ethnic differences in cognitive function reads

arguably similar: always surmising that cognitive function is lower and declines faster among minority subgroups in the USA despite the Mini-Mental State Exam (MMSE), a standard neuropsychological battery used to evaluate cognitive function (Folstein *et al.*, 1975), is susceptible to bias when used to compare racially and ethnically diverse populations to Whites (Borson *et al.*, 2005). The racial/ethnic framing of U.S.-based health disparities research is especially pertinent for cognitive health outcomes since these outcomes are heavily linked to differences in age at migration, English proficiency, parental education, acculturation, discrimination, access to work, and other features of the sociopolitical climate; all of which tend to advantage European/White and English-speaking populations. Meyer *et al.*'s paper stands out in the health disparities and cognitive function literature by using the Spanish and English Neuropsychological Assessment Scales (SENAS), a battery of cognitive tests (verbal episodic memory, semantic memory, and executive functioning) that has been developed for comparisons of cognitive change across racial/ethnic and linguistically diverse groups (Mungas *et al.*, 2004). Using the SENAS in this sample of Asian and Latina/o/x older adults, the authors find the impact of immigration differs in magnitude across cognitive domains and depends on the migration experience. The *Healthy Immigrant Effect*, or the idea that the longer one stays in the USA, the worse their health, is too polarizing of a concept to fully represent the disparities in cognitive health among the generations of Asian and Latina/o/x immigrants in the USA. The truth lies in the particularities of the immigration experience and the measure(s) of health used to represent cognitive function.

Overall, Meyer *et al.*'s study underscores the complementary and interdisciplinary approaches needed to fully understand the differences (and heterogeneity) present within the Asian and Latina/o/x older adult populations in the USA. As Whitfield and Baker-Thomas (1999, p.77) point out, research on these within-group differences is important because (1) it allows the study of minority groups without anchoring their performance to another group (i.e., White Americans) and (2) understanding within-group variability allows for more effective policies to be implemented among minority groups. In our attempts to achieve health equity, underrepresented and minority groups must be centered on research and data-collection efforts to understand how structural, social, and environmental influences aging and cognitive health and how those patterns vary across culture and time.

Conflict of interest

None.

Description of authors' roles

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