Social determinants of health inequalities among older adults in Latin America (LAC)

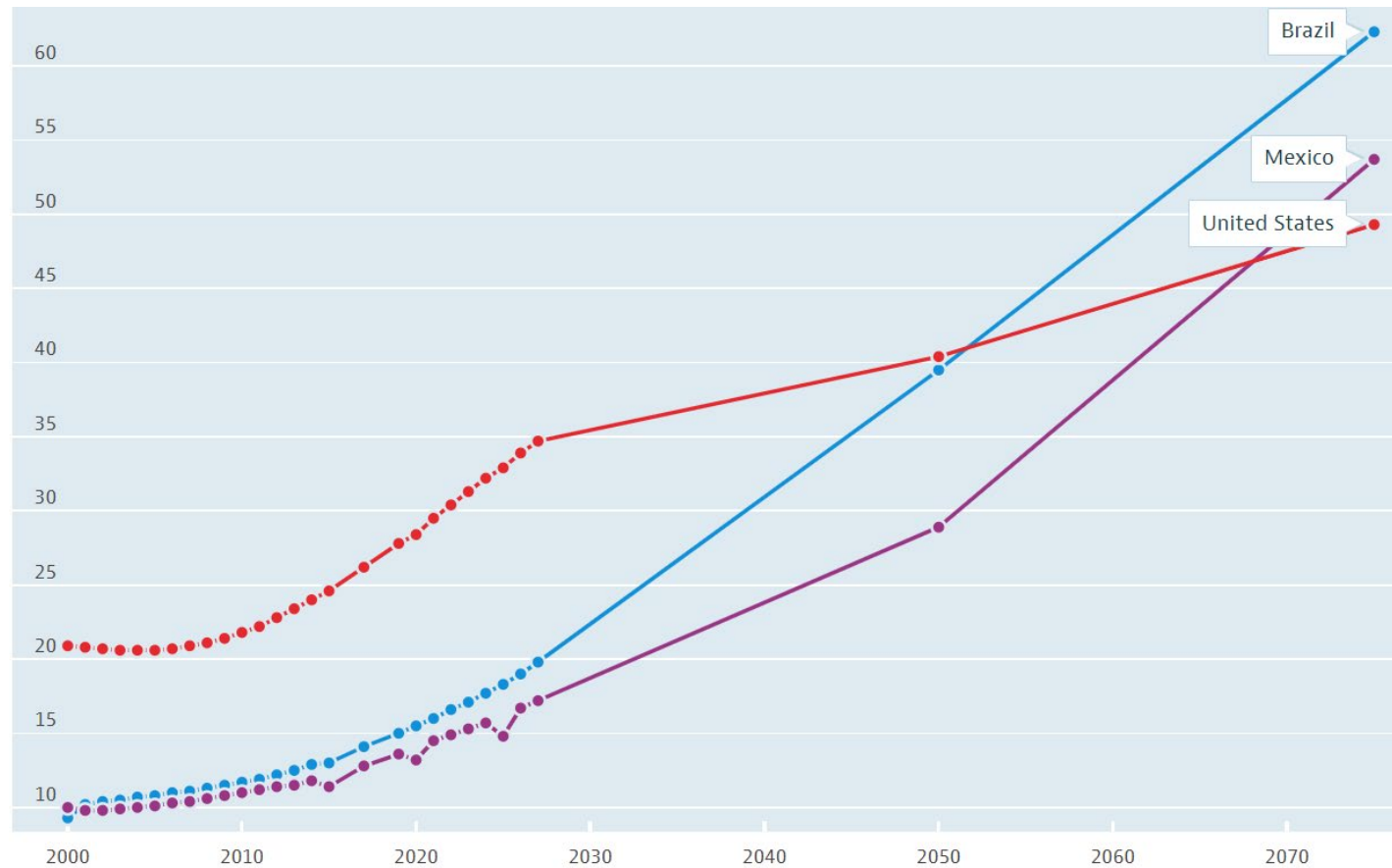**Brazil and Mexico**

Jaqueline C. Avila, PhD
Assistant Professor, Department of Gerontology,
University of Massachusetts Boston
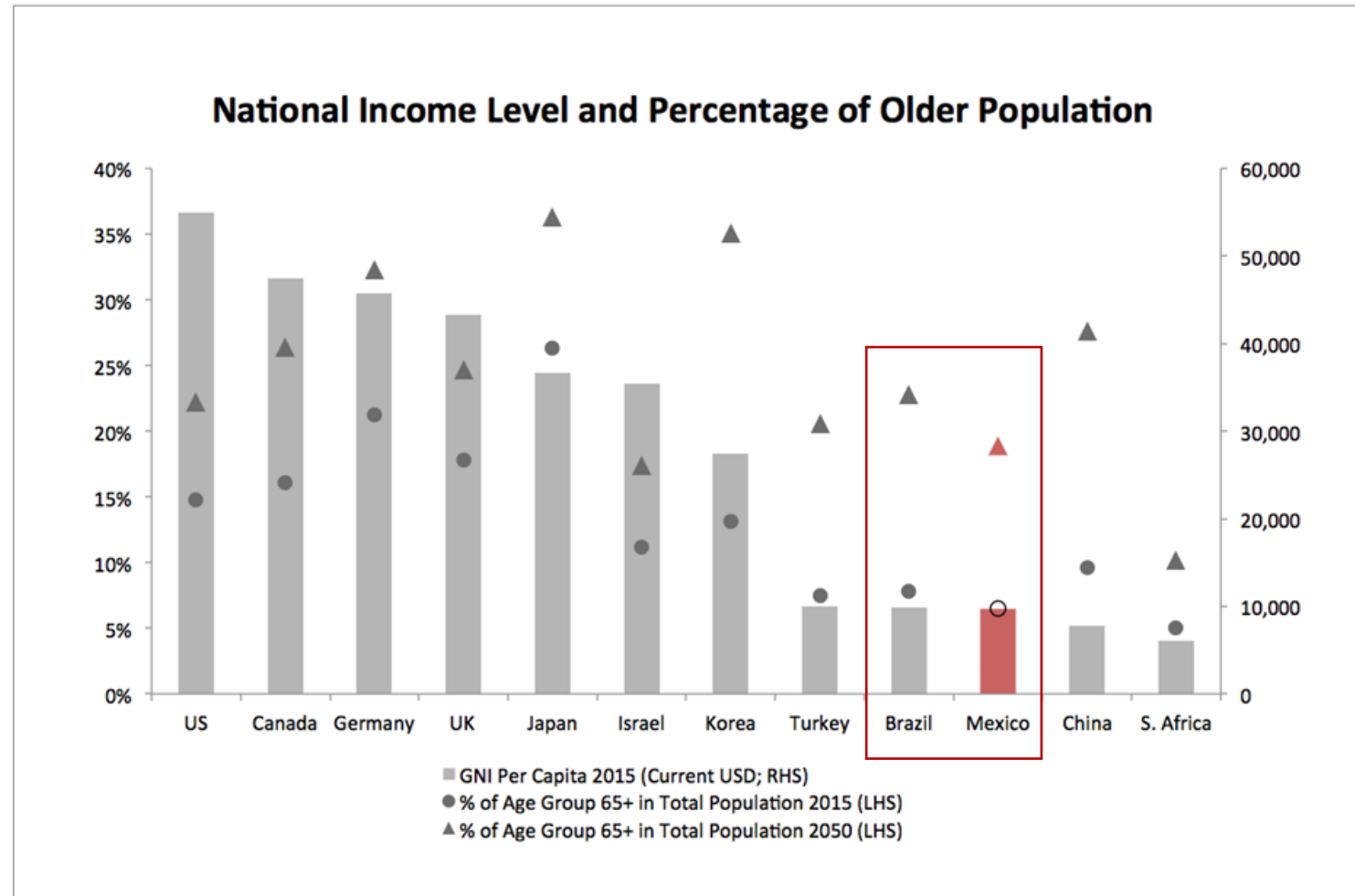
The LAC aging context

- Demographic transition: Accelerated aging.

- Epidemiologic transition: Burden of both infectious and chronic diseases.

- Pension, health care and education systems are not prepared for these changes.

- The case for Brazil and Mexico:
  - Largest economies in LAC
  - Half of the population in LAC
  - Large social inequalities

Angel JL, et al. Aging in Mexico: Population Trends and Emerging Issues. Gerontologist. 2017 Apr;57(2):153-162. ; Tramujas LTV, et al. Aging in Brazil. Gerontologist. 2018 Jul 13;58(4):611-617.
Wong, R., Palloni, A. (2009). Aging in Mexico and Latin America. In: Uhlenberg, P. (eds) International Handbook of Population Aging. International Handbooks of Population, vol 1.

The old-age dependency ratio is rapidly increasing in Brazil and Mexico

Mexico and Brazil are aging fast in a context of low income

National Income Level and Percentage of Older Population

- ■ GNI Per Capita 2015 (Current USD; RHS)
- ● % of Age Group 65+ in Total Population 2015 (LHS)
- ▲ % of Age Group 65+ in Total Population 2050 (LHS)

(Sources: United Nations, World Bank, OECD)

Data available to study population aging and health

Lima-Costa MF, et al. Cohort Profile: The Brazilian Longitudinal Study of Ageing (ELSI-Brazil). Int J Epidemiol. 2023 Feb 8;52(1):e57-e65.
Wong R, et al. Cohort Profile: The Mexican Health and Aging Study (MHAS). Int J Epidemiol. 2017 Apr 1;46(2):e2.

Data available to study population aging and health

- ELSI: 2015 and 2021 (cross-sectional)

Lima-Costa MF, et al. Cohort Profile: The Brazilian Longitudinal Study of Ageing (ELSI-Brazil). Int J Epidemiol. 2023 Feb 8;52(1):e57-e65.
Wong R, et al. Cohort Profile: The Mexican Health and Aging Study (MHAS). Int J Epidemiol. 2017 Apr 1;46(2):e2.

Data available to study population aging and health

- ELSI: 2015 and 2021 (cross-sectional)

- MHAS: 2001, 2003, 2012, 2015, 2018, 2021, coming 2024, 2027

Lima-Costa MF, et al. Cohort Profile: The Brazilian Longitudinal Study of Ageing (ELSI-Brazil). Int J Epidemiol. 2023 Feb 8;52(1):e57-e65.
Wong R, et al. Cohort Profile: The Mexican Health and Aging Study (MHAS). Int J Epidemiol. 2017 Apr 1;46(2):e2.

Data available to study population aging and health

- ELSI: 2015 and 2021 (cross-sectional)

- PNS (Brazilian NHIS)

- PNAD: National Household Sample Survey

- DATASUS

- Regional or city-level data

- MHAS: 2001, 2003, 2012, 2015, 2018, 2021, coming 2024, 2027

Lima-Costa MF, et al. Cohort Profile: The Brazilian Longitudinal Study of Ageing (ELSI-Brazil). Int J Epidemiol. 2023 Feb 8;52(1):e57-e65.
Wong R, et al. Cohort Profile: The Mexican Health and Aging Study (MHAS). Int J Epidemiol. 2017 Apr 1;46(2):e2.

Data available to study population aging and health

Brazil:
- ELSI: 2015 and 2021 (cross-sectional)
- PNS (Brazilian NHIS)
- PNAD: National Household Sample Survey
- DATASUS
- Regional or city-level data

Mexico:
- MHAS: 2001, 2003, 2012, 2015, 2018, 2021, coming 2024, 2027
- ENSANUT (Mexican NHANES)
- Regional or city-level data

Lima-Costa MF, et al. Cohort Profile: The Brazilian Longitudinal Study of Ageing (ELSI-Brazil). Int J Epidemiol. 2023 Feb 8;52(1):e57-e65.
Wong R, et al. Cohort Profile: The Mexican Health and Aging Study (MHAS). Int J Epidemiol. 2017 Apr 1;46(2):e2.

Older adults in Brazil and Mexico have similar characteristics

	ELSI 2015	MHAS 2015	p
Age, mean (SD)	62.5 (9.8)	64.8 (9.7)	< 0.001
Education categories, %			< 0.001
0 years	13.3	17.7	
1-4 years	38.3	25.5	
5-8 years	21.5	27.7	
>8 years	26.9	29.1	
Hypertension, %	52.2	43.8	< 0.001
Diabetes, %	15.2	22.0	< 0.001

Social determinants of health inequalities

Education

Income/Wealth

Gender

Health Insurance

Regional Differences

Common Behavioral and modifiable risk factors:
Tobacco
Obesity

Chronic Diseases:
Diabetes
AD/ADRD

Education

The most studied disparity in Mexico and Brazil

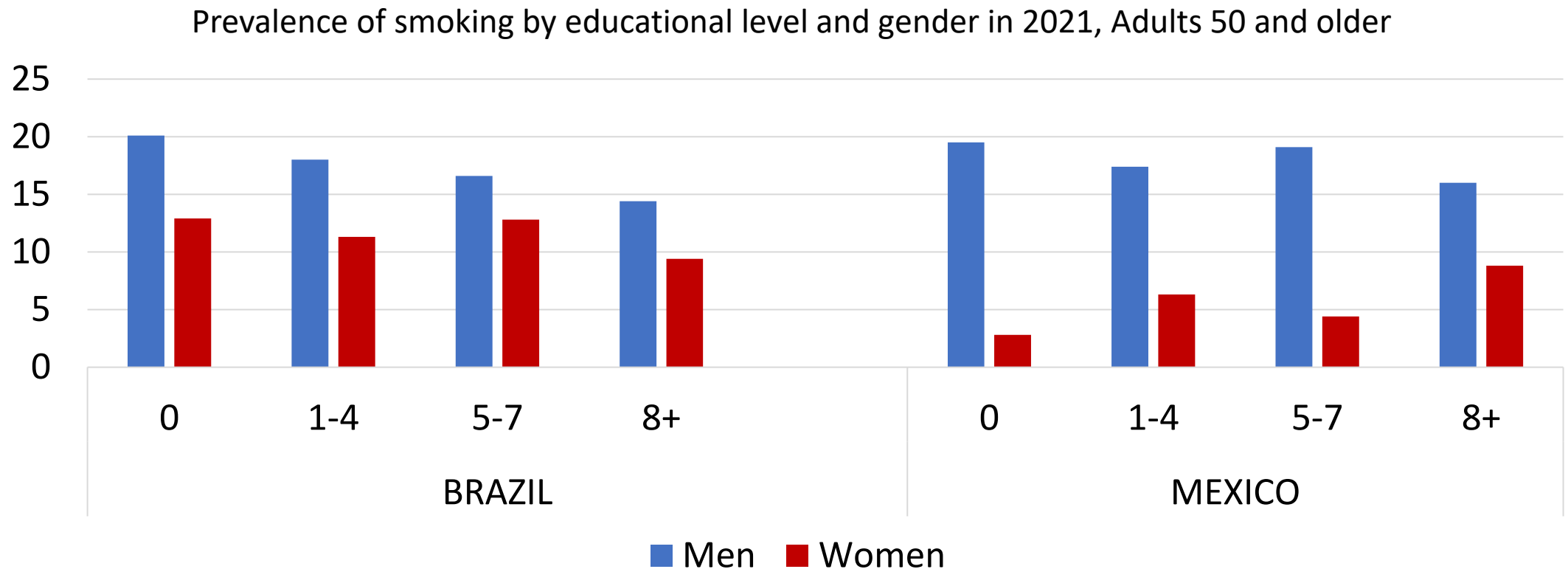Both countries have a high proportion of older adults with 0 years of education

Functional illiteracy is prevalent even among people with a few years of education

1. Obesity prevalence increases as education increases for men in both countries and women in Mexico.
2. Obesity prevalence decreases as education increases for women in Brazil.
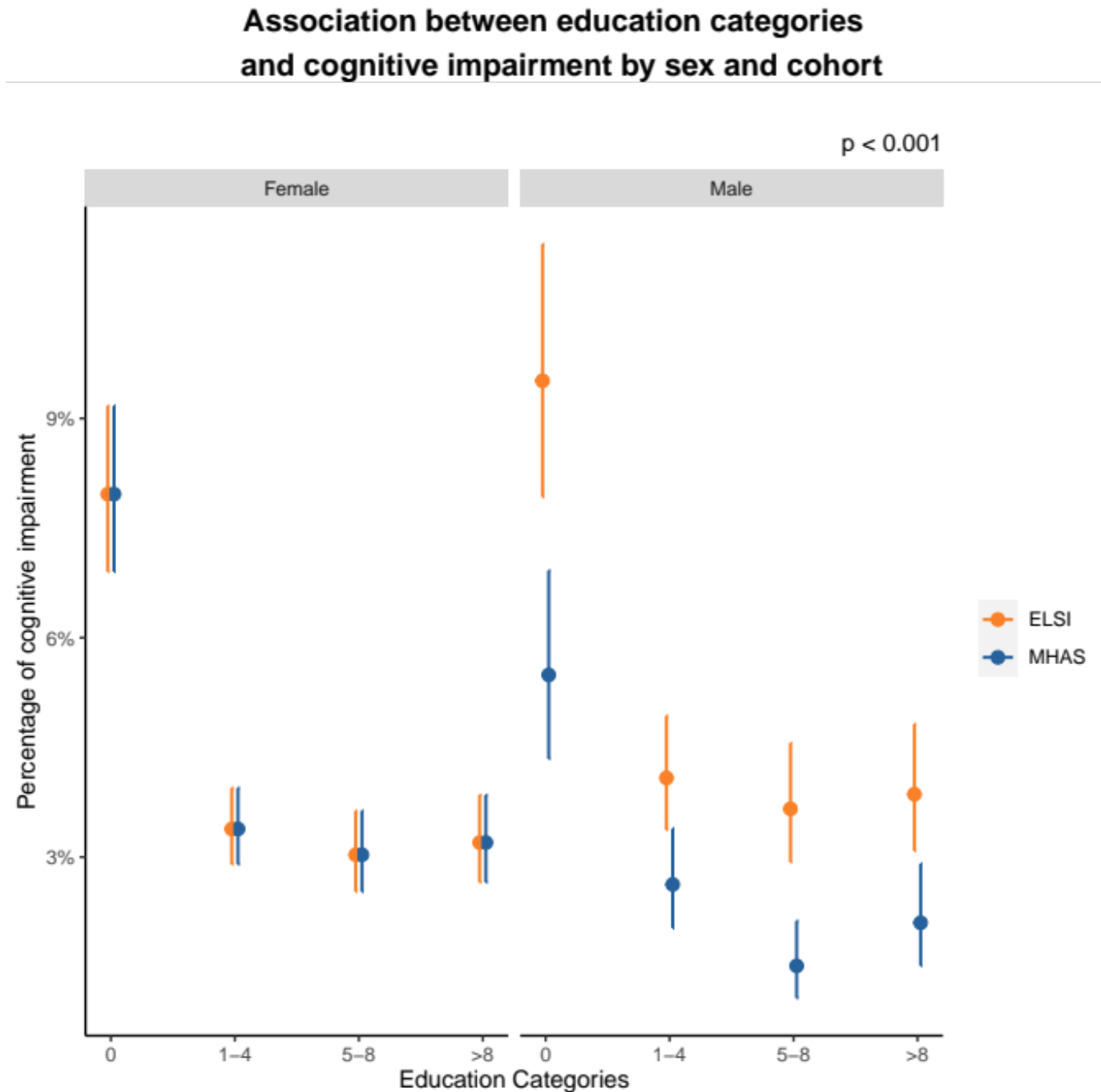
Prevalence of Obesity, Brazil and Mexico

■ Obesity Men ■ Obesity Women

Graphs adapted from Table 3 in: Andrade FCD, López-Ortega M. Educational Differences in Health Among Middle-Aged and Older Adults in Brazil and Mexico. J Aging Health. 2017
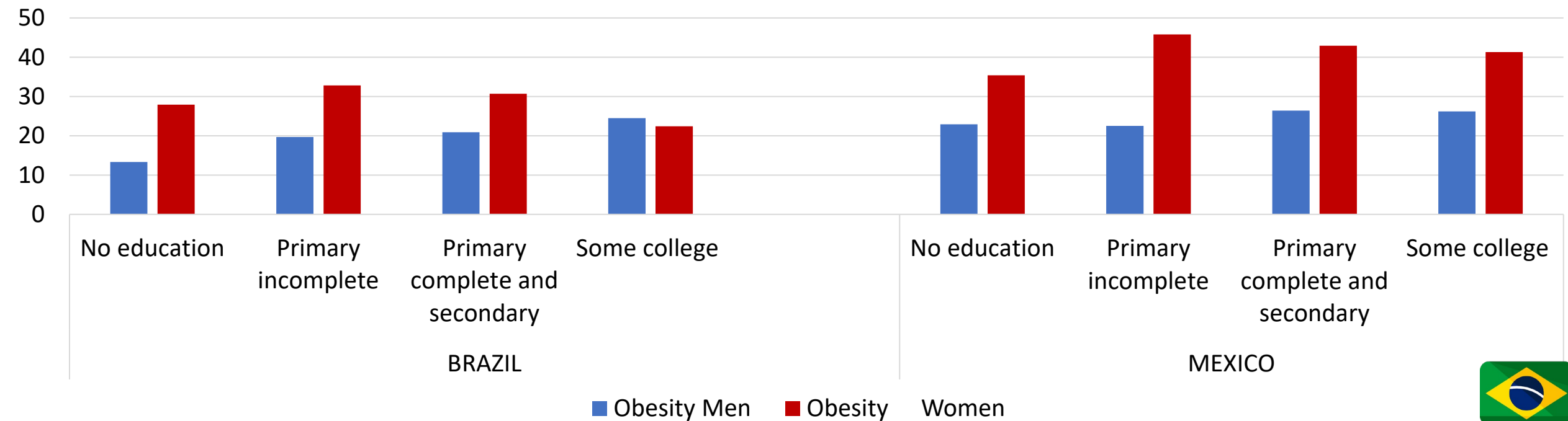
1. Men are more likely to smoke than women.
2. Women in Mexico are more likely to smoke at higher education levels.

Prevalence of smoking by educational level and gender in 2021, Adults 50 and older

BRAZIL

MEXICO

■ Men ■ Women

Avila JC, et al. Tobacco use trends among older adults in Brazil and Mexico. 2023. In preparation.

Even 1 year of education is beneficial for cognition.

Association between education categories and cognitive impairment by sex and cohort

p < 0.001

Goncalves N, Avila JC, et al. Education and cognitive function among older adults in Brazil and Mexico. Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring. 2023. Accepted for publication.

Income and Wealth

- Large income and wealth inequalities that impact health.
- Social security (SS) and other social protection programs have an important role to reduce social inequalities for older adults:

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🇲🇽

- SS is comprehensive and universal.
- Covers more than 80% of older adults and it is the main source of income for older adults.
- Low poverty among older adults.

- SS is fragmented and tied to the employer.
- Large informal work sector does not have access to social security, only supplemental income programs.
- High poverty among older adults.

Aguila E, et al. Costs of Extending the Noncontributory Pension Program for Elderly: The Mexican Case. J Aging Soc Policy. 2016 Oct-Dec;28(4):325-43;
Da Silva de Paiva, L & Ansiliero, G. (2021). The Brazilian Old-Age Social Protection System. 10.1007/978-981-16-1914-4_18-1.

Health Insurance

🇧🇷

- Universal health insurance.
- Regional differences in good access to care.
- Those with private insurance are wealthier and are more likely to visit specialists. Those with public insurance have basic primary care.

🇲🇽

- Health insurance is fragmented and tied to the employer.
- Large uninsured population before health care reform in 2003.
- Significant improvements on primary care use and diagnostics but limited on chronic disease treatments.

Is the health insurance system prepared to deal with an aging population with chronic diseases?

Macinko J, et al. Primary care and healthcare utilization among older Brazilians (ELSI-Brazil). Rev Saude Publica. 2018; Macinko J, et al. Private health insurance, healthcare spending and utilization among older adults. The Journal of the Economics of Ageing. 2022.; Travassos G, et al. The elderly in Brazil: demographic transition, profile, and socioeconomic condition . Rev. bras. Est. pop. 2020.

Parker SW, et al. Health Insurance and the Aging: Evidence From the Seguro Popular Program in Mexico. Demography. 2018; Avila JC, Kaul S, Wong R. Health Care Expenditures and Utilization Among Older Mexican Adults. J Aging Health. 2020; Wong R, Díaz JJ. Health care utilization among older Mexicans: health and socioeconomic inequalities. Salud Publica Mex. 2007.

Sicker individuals still face high medical expenses in Mexico and Brazil
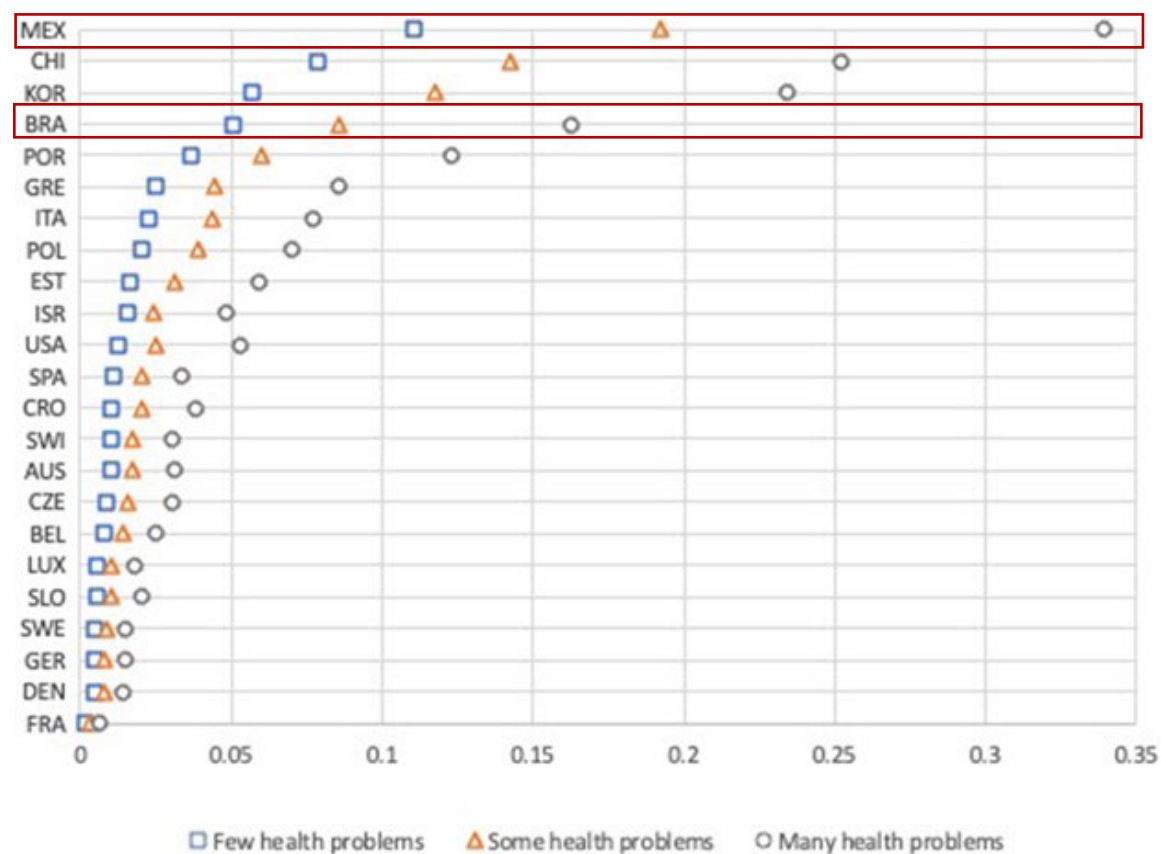
Predicted probability of catastrophic expenditures (>25 percent of household income on out-of-pocket medical expenses), by country and level of health needs

Macinko J, et al. Universal Health Coverage: Are Older Adults Being Left Behind? Evidence From Aging Cohorts In Twenty-Three Countries. Health Aff (Millwood). 2020

Geographical Differences

- Regional differences are a major source of inequality.

- Macro-regions are at different paces of the demographic and epidemiologic transition.

- North and Northeast have poorer access to health care and greater mortality than the South, Midwest, and Southeast regions.

- Urban vs. Rural differences are a major source of inequality.

- Rural areas have poorer access to health care, lower education, more poverty and poorer health

- Urban areas have higher obesity and tobacco/ alcohol use.

Borges GM. Health transition in Brazil: regional variations and divergence/convergence in mortality. Cad Saude Publica. 2017; Suemoto CK, et al. Risk factors for dementia in Brazil: Differences by region and race. Alzheimers Dement. 2023.; Travassos G, et al. The elderly in Brazil: demographic transition, profile, and socioeconomic condition . Rev. bras. Est. pop. 2020.

Salinas JJ, et al. The rural-urban divide: health services utilization among older Mexicans in Mexico. J Rural Health. 2010; Saenz JL, et al. Rural/urban dwelling across the life-course and late-life cognitive ability in Mexico. SSM Popul Health. 2022; Smith KV, et al. Socioeconomic differences in health among older adults in Mexico. Soc Sci Med. 2007.

Trends: The importance of cohort differences

"The legacy of the past vs. the fragility of the future"

- Younger cohorts:
  - Help us understand the aging scenario in the coming decades.
  - Social determinants of health inequalities across cohorts are changing fast.
  - Demographic and epidemiologic changes in new cohorts will impact chronic disease burden.

Palloni A, Souza L. THE FRAGILITY OF THE FUTURE AND THE TUG OF THE PAST: LONGEVITY IN LATIN AMERICA AND THE CARIBBEAN. Demogr Res. 2013.
Sudharsanan N, Geldsetzer P. Impact of Coming Demographic Changes on the Number of Adults in Need of Care for Hypertension in Brazil, China, India, Indonesia, Mexico, and South Africa. Hypertension. 2019

Education inequalities in Diabetes prevalence are increasing in Brazil

Beltrán-Sánchez, H., Andrade, F.C.D. Time trends in adult chronic disease inequalities by education in Brazil: 1998–2013. *Int J Equity Health* **15**, 139 (2016).
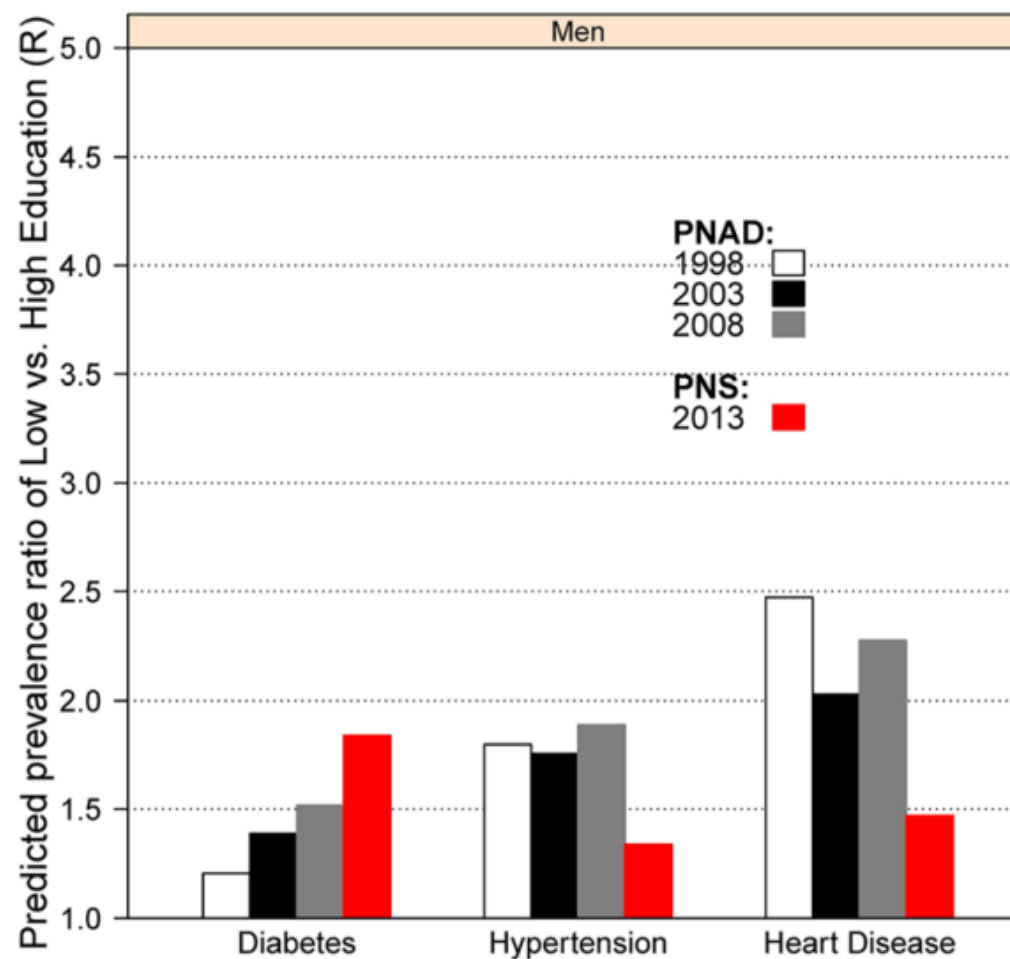
1. Obesity prevalence is increasing for men and women in Mexico.
2. Middle-aged adults have higher obesity prevalence than older adults.

Mexico- % Obese Aged 50-59
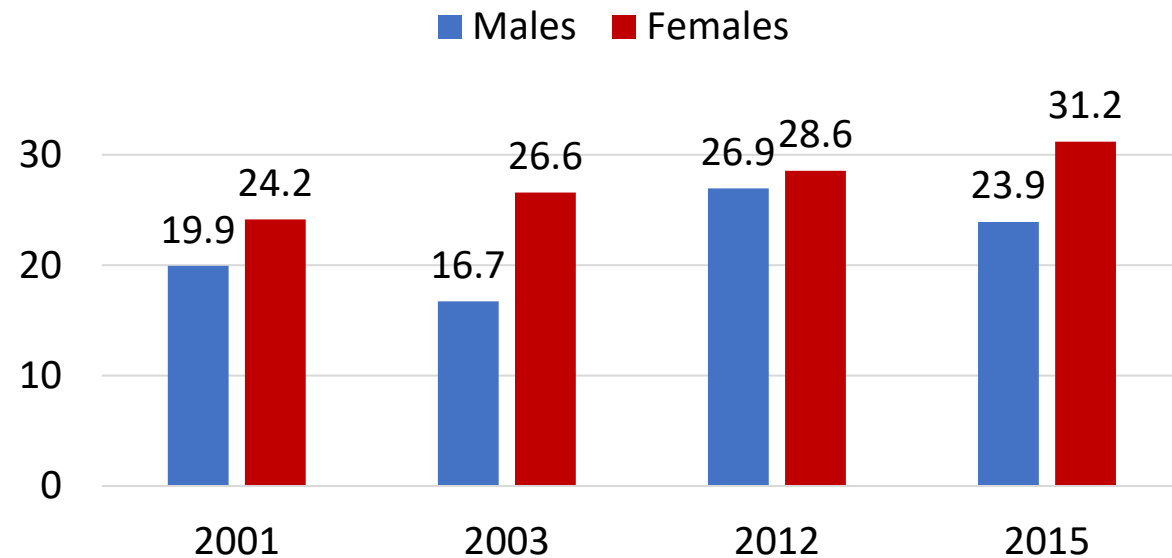
Mexico – % Obese Aged 60+
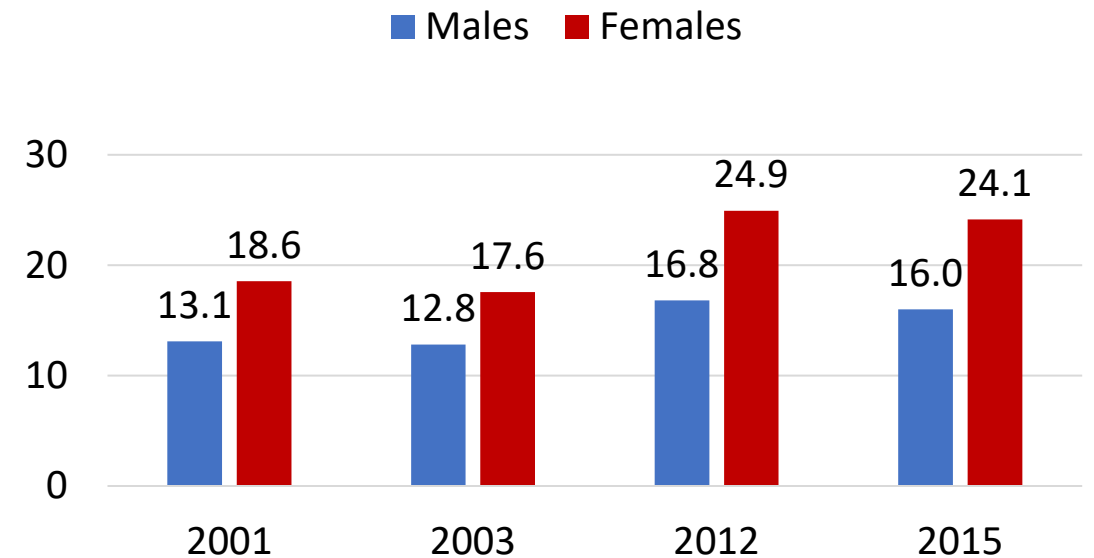
Men with higher education smoked more but are now quitting; this transition lags for women
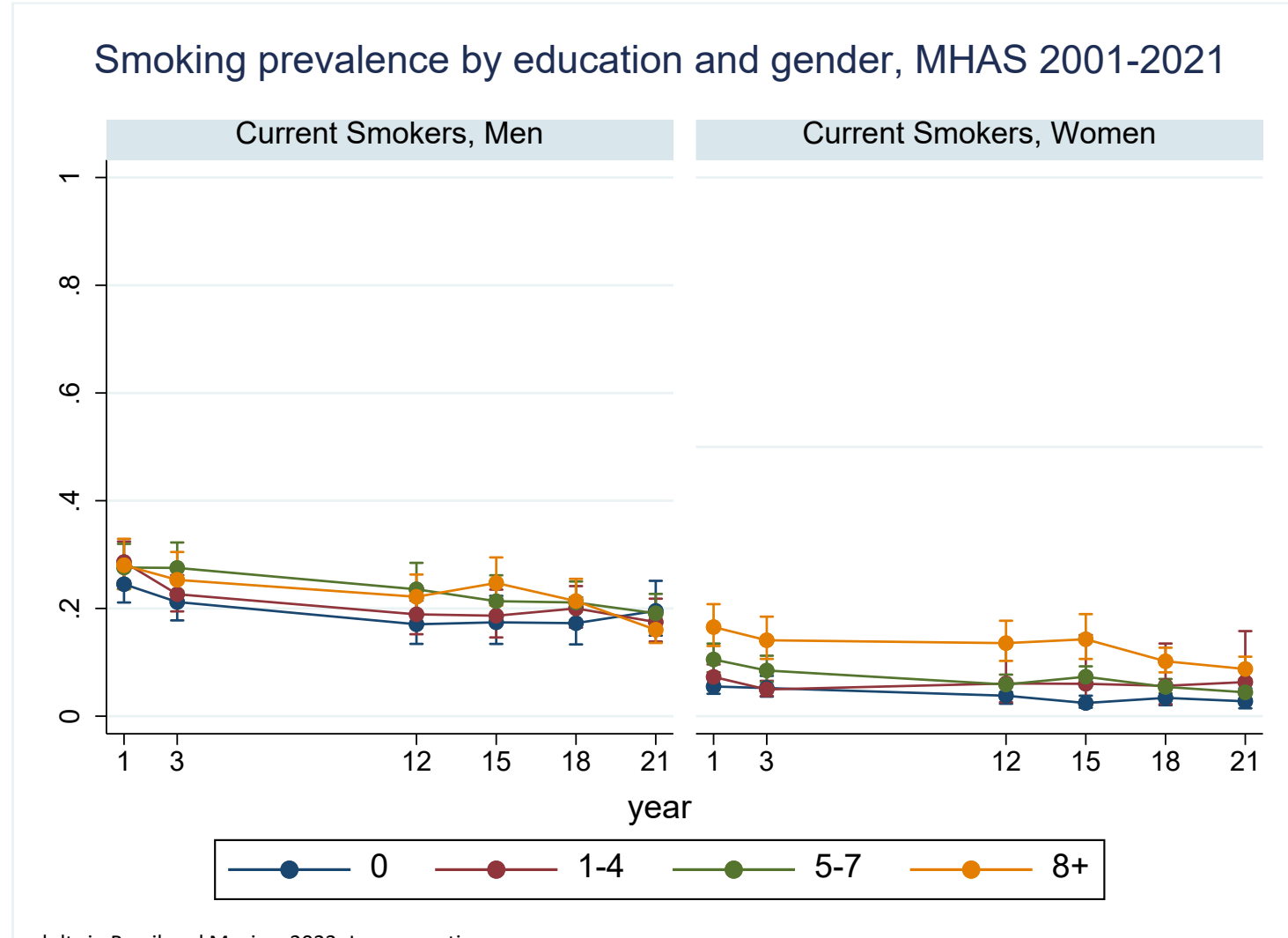
Smoking prevalence by education and gender, MHAS 2001-2021

Legend: 0 | 1-4 | 5-7 | 8+

Avila JC, et al. Tobacco use trends among older adults in Brazil and Mexico. 2023. In preparation.

Thank you!

Thank you to all the researchers cited in this presentation who are furthering our understanding of aging in Mexico and Brazil!

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