***Documentation for Life Expectancy (LE) and Lifespan Variation (LV) NCHS Mortality Data Analysis (1990-2019)***

**Updated 7/13/2022 by Isabel De Ramos**

*Data*

* Data source for 2000-2019 mortality data
  + 1990\_2019\_nchs\_mortality.rdata generated from LE\_data\_prep.R (see LE Data Prep Documention.docx for variables available in .rdata). Please note that LE\_data\_prep.R uses the restricted NCHS mortality data which we cannot share publicly.

*Code*

* The code to calculate, analyze, and produce data visualizations for LE and LV is LE\_calc\_analysis.R
* le\_lv() function has two main functions:
  + calculate life expectancy and respective 95% CI
    - adapted methodology Carlo Giovanni Camarda’s routine for life table and confidence interval construction available here: <https://sites.google.com/site/carlogiovannicamarda/r-stuff/life-expectancy-confidence-interval>
  + calculate lifespan variation (standard deviation and coefficient of variation)
    - adapted methodology from van Raalte, Sasson, & Martikainen (2018) available here: <https://www.science.org/doi/10.1126/science.aau5811> (see Supplementary Material > aau5811\_data\_file\_s1.xlsx)
* Four sets of analyses are produced in this code: Baseline, Analysis 1, Analysis 2, Analysis 3, Analysis 4, and Analysis 5. Each analysis generates their respective tables and figures (enable document outline in R.)

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| --- | --- | --- | --- | --- | --- |
| **Stratification** | **Baseline Analysis** | **Additional Analysis 1: Longitudinal** | **Additional Analysis 2:**  **Gender \*this becomes new baseline analysis\*** | **Additional Analysis 3:**  **Urbanicity** | **Additional Analysis 4:**  **Census Regions** |
| *Race/*  *Ethnicity* | **4 groups**   * **NHW** * **NHB** * **H** * **NHAPI** | 4 groups   * NHW * NHB * H * NHAPI | 4 groups   * NHW * NHB * H * NHAPI | 4 groups   * NHW * NHB * H * NHAPI | 4 groups   * NHW * NHB * H * NHAPI |
| *Urbanicity* | **2 groups**   * **Metro** * **Nonmetro** | 2 groups   * Metro * Nonmetro | 2 groups   * Metro * Nonmetro | 6 groups   * Large central metro * Large fringe metro * Medium metro * Small metro * Micropolitan * Noncore | 2 groups   * Metro * Nonmetro |
| *Time* | **2015-2019 pooled** | 2000-2019 5-year periods   * 2000-2004 * 2005-2009 * 2010-2014 * 2015-2019 | 2015-2019 pooled | 2015-2019 pooled | 2015-2019 pooled |
| *Gender* | **Pooled** | Pooled | 2 groups   * Male * Female | Pooled | Pooled |
| *Geography* | **Pooled** | Pooled | Pooled | Pooled | 4 census regions   * Northeast * Midwest * South * West |