

Temporal Trends in Mortality Associated With Non-Hodgkin Lymphoma and Ischemic Heart Disease in the United States: A CDC WONDER Joinpoint Analysis (1999–2020)

Neha Singh¹, Amna Bint I Munir¹, Juhi Chovatiya², Sapna Kumari³, Khoula Aslam¹

¹ North Alabama Medical Center, Florence, AL, USA ² University of California Riverside School of Medicine, Riverside, CA, USA

³ WellSpan Health York Hospital, York, PA, USA



Background & objective

- Non-Hodgkin lymphoma and ischemic heart disease remain important contributors to mortality in the United States.
- Advances in cancer treatment and cardiovascular prevention have improved outcomes, but mortality associated with both conditions remains a concern.
- Objective:** Evaluate temporal and subgroup trends in NHL–IHD-associated mortality, 1999–2020.

Methods

- Study:** Retrospective population-based analysis.
- Analysis:** Joinpoint regression estimated annual percent change (APC) with 95% confidence intervals.
- Database:** CDC WONDER Multiple Cause of Death database, 1999–2020.
- Case definition:** NHL (ICD-10 C82–C85) and IHD (I20–I25) listed on death certificates.
- Outcome:** Age-adjusted mortality rates (AAMRs) per 100,000, standardized to the 2000 US population.
- Strata:** Sex, race/ethnicity, and US Census region.

Results

49,133
NHL–IHD-associated deaths

63.7%
Deaths occurring in males

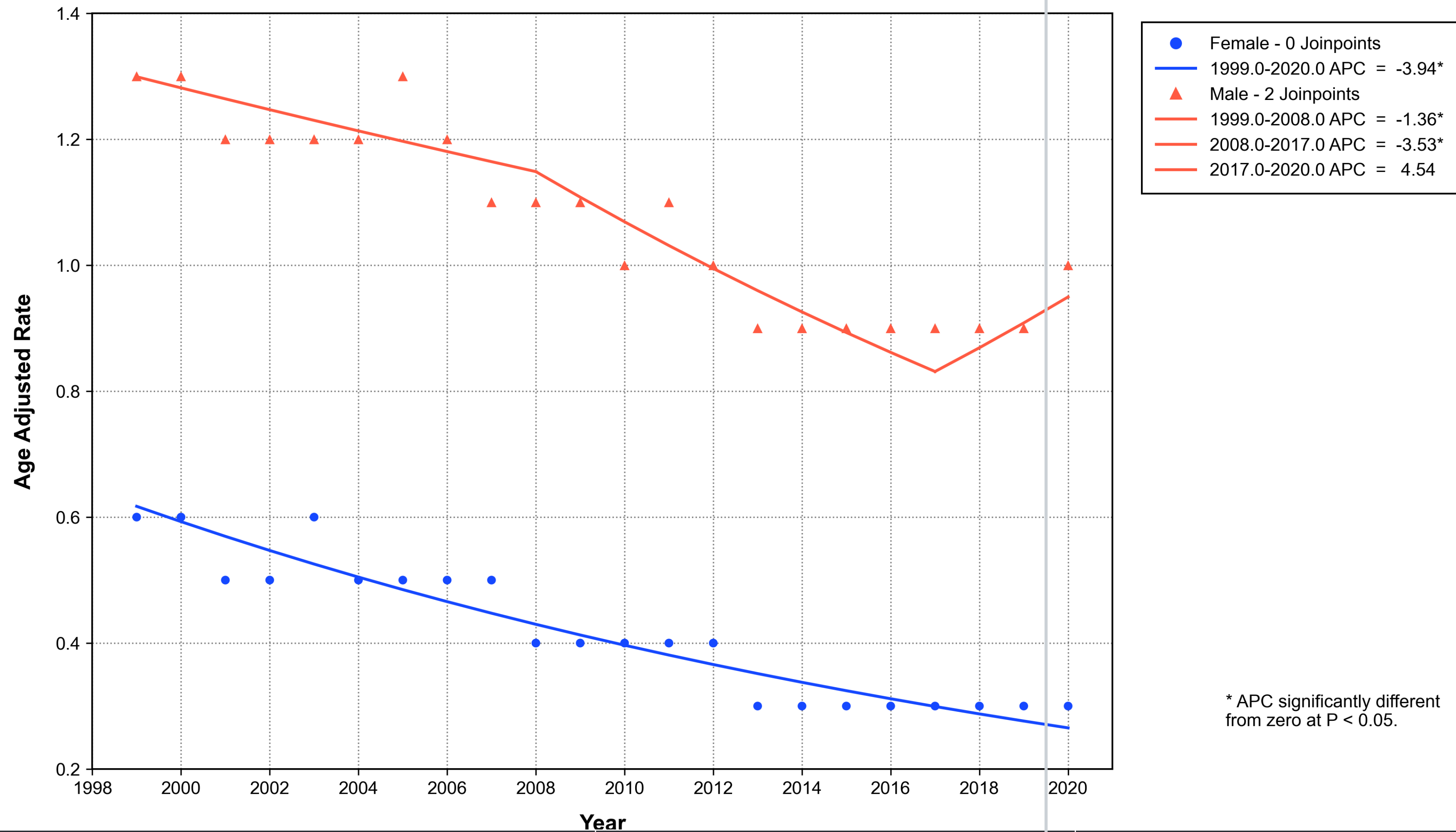
1.63 vs 0.65
Pooled AAMR: male vs female

1.21
Highest regional pooled AAMR: Midwest

–2.73%
White APC 1999–2018
P <0.001

–3.62%
Asian or Pacific Islander APC
P <0.001

Figure 1. Joinpoint trends in age-adjusted mortality rates associated with non-Hodgkin lymphoma and ischemic heart disease by sex in the US, 1999–2020.

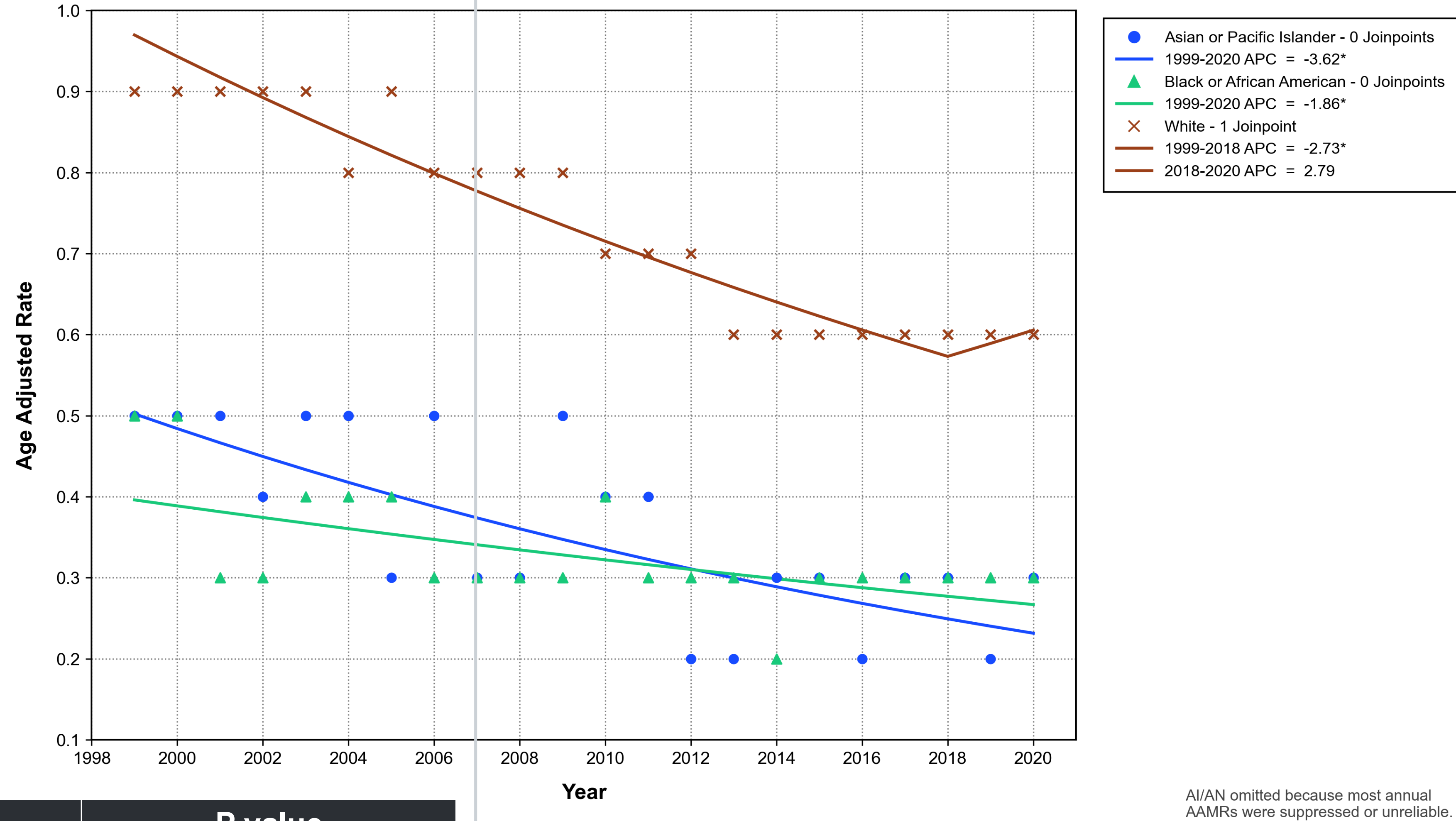


Group / interval	APC or AAMR	95% CI	P value
Female, 1999–2020	APC –3.94%	–4.35 to –3.53	<0.001
Male, 1999–2008	APC –1.36%	–2.22 to –0.49	0.005
Male, 2008–2017	APC –3.53%	–4.59 to –2.46	<0.001
Male, 2017–2020	APC +4.54%	–0.65 to 10.00	0.082
White pooled	AAMR 1.10	1.09 to 1.11	—
Asian/Pacific Islander	APC –3.62%	–4.75 to –2.47	<0.001

Conclusions

- Mortality associated with non-Hodgkin lymphoma and ischemic heart disease declined significantly in the United States from 1999 to 2020.
- Males had a substantially higher mortality burden, while persistent racial, ethnic, and regional disparities were observed.
- Targeted cardio-oncology prevention strategies and equitable access to care are needed to address these disparities.

Figure 2. Joinpoint trends in age-adjusted mortality rates associated with non-Hodgkin lymphoma and ischemic heart disease by Race in the US, 1999–2020.



References

- Centers for Disease Control and Prevention, National Center for Health Statistics. *Multiple Cause of Death, 1999–2020*. CDC WONDER Online Database. <https://wonder.cdc.gov/mcd.html>
- Kim HJ, Fay MP, Feuer EJ, Midthune DN. Permutation tests for Joinpoint regression with applications to cancer rates. *Stat Med*. 2000;19(3):335–351.

Contact

Amna Bint I Munir
PGY3 IM Resident
North Alabama Medical Center Florence, Alabama, USA
Email: amnabintimunir@gmail.com