

US Cancer Mortality Trends Among Hispanic Populations From 1999 to 2020

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IMPORTANCE Advances in cancer research and treatment access have led to decreasing cancer mortality in the US; however, cancer remains the leading cause of death among Hispanic individuals.

OBJECTIVE To evaluate longitudinal cancer mortality trends from 1999 to 2020 among Hispanic individuals by demographic characteristics and to compare age-adjusted cancer death rates between the Hispanic population and other racial and ethnic populations during 2000, 2010, and 2020.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional study obtained age-adjusted cancer death rates among Hispanic individuals of all ages between January 1999 and December 2020, using the Centers for Disease Control and Prevention WONDER database. Cancer death rates in other racial and ethnic populations were extracted for 2000, 2010, and 2020. Data were analyzed from October 2021 to December 2022.

EXPOSURES Age, gender, race, ethnicity, cancer type, and US census region.

MAIN OUTCOMES AND MEASURES Trends and average annual percent changes (AAPCs) in age-adjusted cancer-specific mortality (CSM) rates among Hispanic individuals were estimated by cancer type, age, gender, and region.

RESULTS From 1999 to 2020, 12 644 869 patients died of cancer in the US, of whom 690 677 (5.5%) were Hispanic; 58 783 (0.5%) were non-Hispanic American Indian or Alaska Native; 305 386 (2.4%), non-Hispanic Asian or Pacific Islander; 1 439 259 (11.4%), non-Hispanic Black or African American; and 10 124 361 (80.1%), non-Hispanic White. For 26 403 patients (0.2%), no ethnicity was stated. The overall CSM rate among Hispanic individuals decreased by 1.3% (95% CI, 1.2%-1.3%) annually. Overall CSM rate decreased more for Hispanic men (AAPC, -1.6%; 95% CI, -1.7% to -1.5%) compared with women (AAPC, -1.0%; 95% CI, -1.0% to -0.9%). While death rates among Hispanic individuals decreased for most cancer types, mortality rates for liver cancer (AAPC, 1.0%; 95% CI, 0.6%-1.4%) increased among Hispanic men, and rates of liver (AAPC, 1.0%; 95% CI, 0.8%-1.3%), pancreas (AAPC, 0.2%; 95% CI, 0.1%-0.4%), and uterine (AAPC, 1.6%; 95% CI, 1.0%-2.3%) cancers increased among Hispanic women. Overall CSM rates increased for Hispanic men aged 25 to 34 years (AAPC, 0.7%; 95% CI, 0.3%-1.1%). By US region, liver cancer mortality rates increased significantly in the West for both Hispanic men (AAPC, 1.6%; 95% CI, 0.9%-2.2%) and Hispanic women (AAPC, 1.5%; 95% CI, 1.1%-1.9%). There were differential findings in mortality rates when comparing Hispanic individuals with individuals belonging to other racial and ethnic populations.

CONCLUSIONS AND RELEVANCE In this cross-sectional study, despite overall CSM decreasing over 2 decades among Hispanic individuals, disaggregation of data demonstrated that rates of liver cancer deaths among Hispanic men and women and pancreas and uterine cancer deaths among Hispanic women increased from 1999 to 2020. There were also disparities in CSM rates among age groups and US regions. The findings suggest that sustainable solutions need to be implemented to reverse these trends among Hispanic populations.

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The Hispanic population was the largest racial or ethnic minority population in the US in 2021, comprising 62.6 million (18.9%) of the total population.¹ While Hispanic individuals have been found to generally have lower cancer incidence than non-Hispanic White individuals,^{2,3} cancer remains the leading cause of death among Hispanic populations.⁴ In this study, we evaluated longitudinal cancer-specific mortality (CSM) trends by cancer type, gender, age, and US region in the US Hispanic population between 1999 and 2020.

Methods

This cross-sectional study used deidentified demographic and cancer mortality data from January 1999 to December 2020 from the Centers for Disease Control and Prevention (CDC) WONDER database, which is updated yearly by the National Center for Health Statistics. Causes of death were obtained using *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* codes (eTable 1 in Supplement 1).⁵ Calculated age-adjusted death rates among Hispanic individuals for all ages were obtained using CDC calculations and categorized by gender, age, cancer type, and US census region. Age-adjusted cancer death rates were obtained for non-Hispanic American Indian or Alaska Native, non-Hispanic Asian or Pacific Islander, non-Hispanic Black or African American, and non-Hispanic White individuals for 3 selected years (2000, 2010, and 2020) to compare with the age-adjusted death rates among Hispanic individuals in those years. The study was exempted from human participant research guidelines, with a waiver of informed consent, by the Mass General Brigham institutional review board because WONDER is a public database of anonymous mortality rates. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

Statistical Analysis

Cancer-specific mortality dynamics were assessed using Joinpoint regression to estimate average annual percent changes (AAPCs) in mortality rates.⁶ A maximum of 4 join points were allowed in fitting the data. Data analysis was performed using the National Cancer Institute's Joinpoint Regression Program, version 4.9.1.0.⁷ All *P* values are based on 2-sided hypothesis tests; *P* < .05 with multivariate test correction was considered statistically significant (eMethods in Supplement 1). Data were analyzed from October 2021 to December 2022.

Results

Between 1999 and 2020, 12 644 869 patients died of cancer in the US, of whom 690 677 (5.5%) were Hispanic; 58 783 (0.5%) were non-Hispanic American Indian or Alaska Native; 305 386 (2.4%), non-Hispanic Asian or Pacific Islander; 1 439 259 (11.4%), non-Hispanic Black or African American; and 10 124 361 (80.1%), non-Hispanic White. For 26 403 patients (0.2%),

Key Points

Question What were the trends in cancer mortality among Hispanic individuals in the US from 1999 to 2020?

Findings In this cross-sectional study of 690 677 cancer deaths among Hispanic individuals in the US, from 1999 to 2020, rates of death from liver cancer among Hispanic men and liver, pancreas, and uterine cancer among Hispanic women increased. Overall cancer mortality rates increased among Hispanic men aged 25 to 34 years, and there were disparities in cancer mortality rates among Hispanic individuals by US region.

Meaning In this study, worsening cancer mortality trends were found among certain demographics within the Hispanic community, suggesting that strategies addressing systemic and cultural inequities are needed.

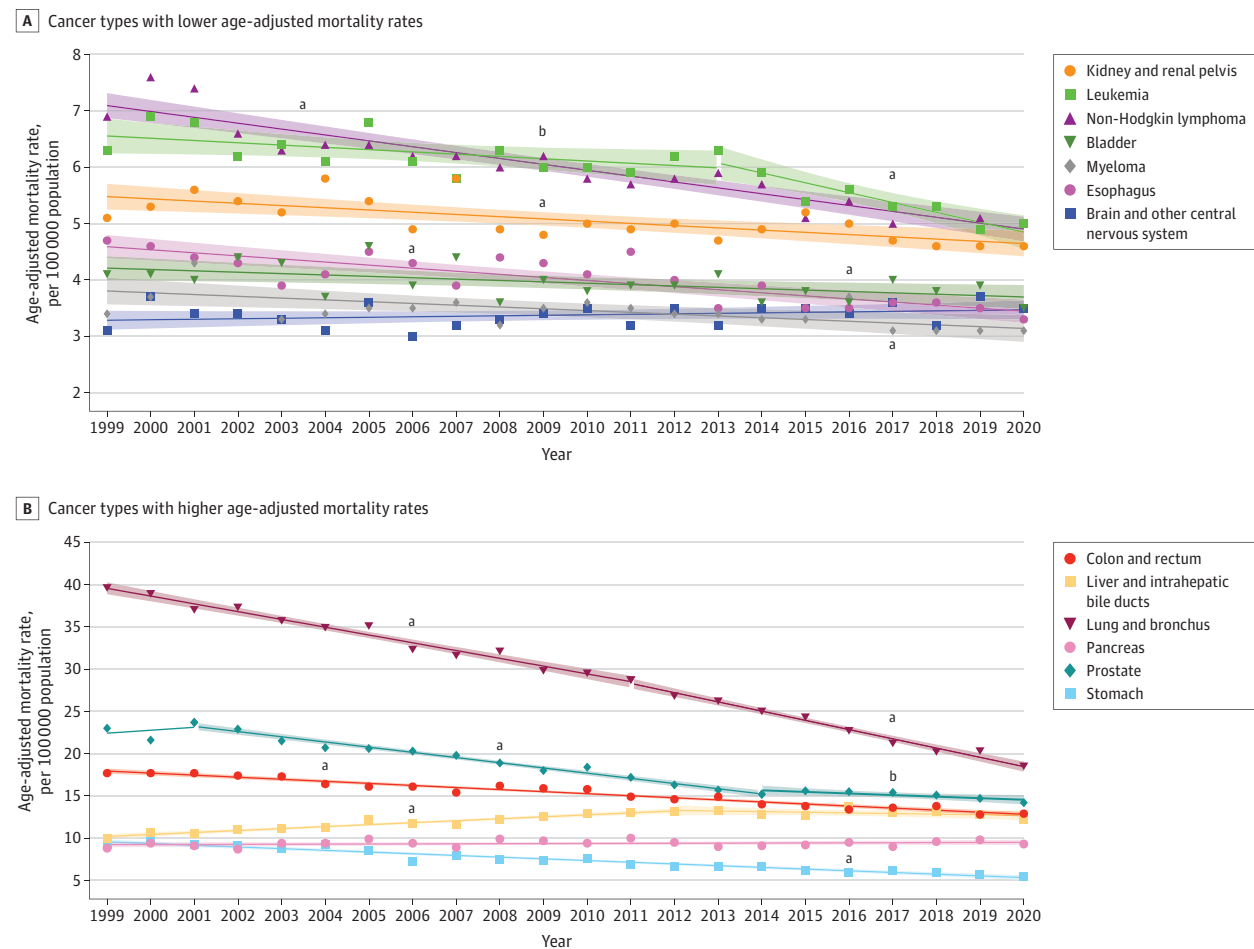
no ethnicity was stated. The age-adjusted CSM rate was 142.5 per 100 000 population among Hispanic men and 98.3 per 100 000 population among Hispanic women (eTable 2 in Supplement 1).

Overall, the CSM rate for Hispanic individuals decreased by 1.3% (95% CI, 1.2%-1.3%) per year (*P* < .001) during the study period (change, -31.2 per 100 000 population; 95% CI, -34.3 to -28.2 per 100 000 population), with a greater reduction among men compared with women (men: AAPC -1.6% [95% CI, -1.7% to -1.5%]; change, -48.5 per 100 000 population [95% CI, -53.8 to -43.3 per 100 000 population]; women: AAPC, -1.0% [95% CI, -1.0% to -0.9%]; change, -20.5 per 100 000 population [95% CI, -24.1 to -17.0 per 100 000 population]) (eTables 2 and 3 in Supplement 1). While there were decreases in mortality rates for most cancer sites among Hispanic men (Figure 1A), mortality rates significantly increased for liver cancer (AAPC, 1.0%; 95% CI, 0.6%-1.4%) (Figure 1B). Among Hispanic women, liver (AAPC, 1.0%; 95% CI, 0.8%-1.3%), pancreas (AAPC, 0.2%; 95% CI, 0.1%-0.4%), and uterine (AAPC, 1.6%; 95% CI, 1.0%-2.3%) cancers had statistically significant rate increases between 1999 and 2020 (Figure 2). Mortality rates for brain and other central nervous system (CNS) malignant tumors in Hispanic women significantly increased from 2010 to 2020 (AAPC, 1.4%; 95% CI, 0.5%-2.4%). Between 1999 and 2020, the greatest decreases in mortality rates were for lung cancer among Hispanic men and women (men in 2011-2020: AAPC, -4.6% [95% CI, -5.1% to -4.1%]; women in 2014-2020: AAPC, -3.6% [95% CI, -4.6% to -2.5%]).

By age group, CSM rates decreased in all groups from 1999 to 2020 except among Hispanic men aged 25 to 34 years (AAPC, 0.7%; 95% CI, 0.3%-1.1%) (eTable 4 and eFigure 1 in Supplement 1). On further analysis, mortality rates for colorectal cancer (CRC) and testis cancer significantly increased from 2003 to 2020 (CRC: AAPC, 2.4% [95% CI, 0.9%-3.9%]; testis cancer: AAPC, 3.2% [95% CI, 1.6%-4.7%]) in this cohort (eFigure 2 in Supplement 1). Among those aged 35 to 44 years, rates of deaths from stomach cancer and CRC increased from 1999 to 2020 (stomach cancer: AAPC, 1.1% [95% CI, 0.3%-1.9%]; CRC: AAPC, 1.8% [95% CI, 0.8%-2.8%]) (eFigure 2 in Supplement 1).

For Hispanic women, the greatest increases from 1999 to 2020 were for uterine cancer among those aged 45 to 54 years

Figure 1. Trends in Age-Adjusted Death Rates Among Hispanic Men by Cancer Type From 1999 to 2020



Markers represent observed rates; lines, modeled trends; and shading, 95% CIs.
^a Statistically significant average annual percentage change after Holm-Bonferroni correction.
^b $P < .05$, but not significant by Holm-Bonferroni correction.

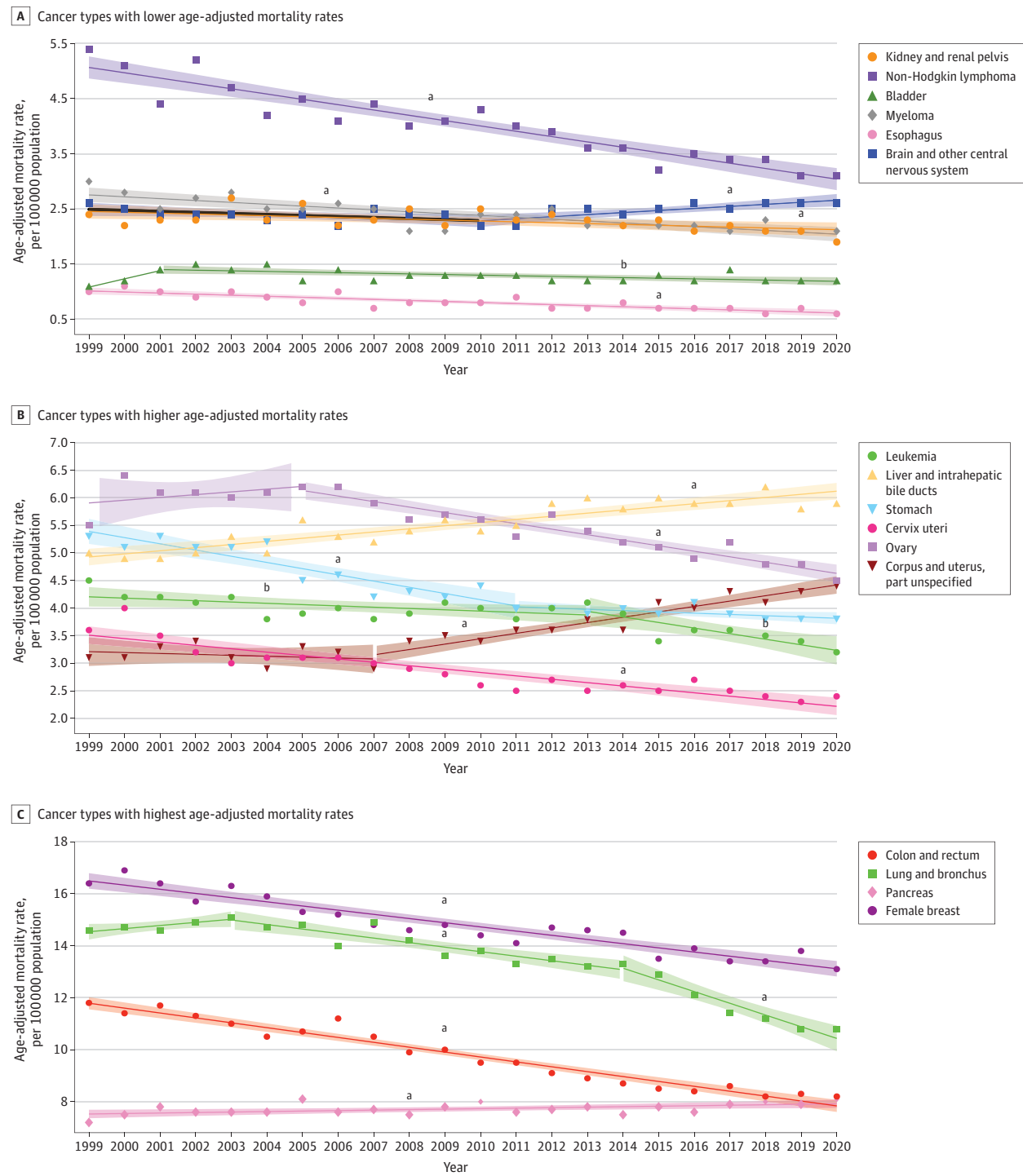
(AAPC, 2.7%; 95% CI, 1.8%-3.6%) and 65 to 74 years (AAPC, 2.0%; 95% CI, 1.4%-2.7%) (eFigure 3 in Supplement 1). Liver cancer death rates increased the most among those aged 55 to 64 years (AAPC, 2.1%; 95% CI, 1.5%-2.7%).

By US region, rates of death from liver cancer significantly increased in the West for both Hispanic men and women from 1999 to 2020 (men: AAPC, 1.6% [95% CI, 0.9%-2.2%]; women: AAPC, 1.5% [95% CI, 1.1%-1.9%]), in the South for men (AAPC, 1.0%; 95% CI, 0.4%-1.7%), and in the Northeast for women (AAPC, 1.1%; 95% CI, 0.4%-1.8%) (eFigures 4 and 5 in Supplement 1). For women, uterine cancer death rates increased in the West (AAPC, 1.9%; 95% CI, 1.4%-2.4%) and the Northeast (AAPC, 1.5%; 95% CI, 0.7%-2.4%), pancreatic cancer death rates significantly increased in the Midwest (AAPC, 1.7%; 95% CI, 0.9%-2.5%), and CNS cancer death rates increased in the Northeast (AAPC, 1.3%; 95% CI, 0.5%-2.2%).

In 2020, both Hispanic men and women had consistently higher CSM rates than non-Hispanic Asian or Pacific Islander men or women for all cancers apart from lung cancer among men (18.5 per 100 000 population [95% CI, 17.8-19.2 per

100 000 population] vs 23.6 per 100 000 population [95% CI, 22.6-24.6 per 100 000 population]) and esophageal (0.6 per 100 000 population [95% CI, 0.5-0.7 per 100 000 population] vs 0.7 deaths per 100 000 population [95% CI, 0.5-0.8 per 100 000 population]) and lung (10.8 per 100 000 population [95% CI, 10.4-11.2 per 100 000 population] vs 14.7 per 100 000 population [95% CI, 14.0-15.3 per 100 000 population]) cancers among women (Table). Hispanic women had the highest death rate from stomach cancer compared with women in any other racial or ethnic group (3.8 per 100 000 population; 95% CI, 3.6-4.1 per 100 000 population). Among Hispanic men, stomach cancer mortality rates (5.5 per 100 000 population; 95% CI, 5.1-5.8 per 100 000 population) were twice as high as those among non-Hispanic White men (2.8 per 100 000 population; 95% CI, 2.7-2.9 per 100 000 population). Hispanic men had the second highest mortality rates for liver and brain or CNS cancer and non-Hodgkin lymphoma, while Hispanic women had the second highest mortality rates for liver, cervical, and brain or CNS cancer and non-Hodgkin lymphoma.

Figure 2. Trends in Age-Adjusted Death Rates Among Hispanic Women by Cancer Type From 1999 to 2020



Markers represent observed rates; lines, modeled trends; and shading, 95% CIs.

^a Statistically significant average annual percentage change after Holm-Bonferroni correction.

^b $P < .05$, but not significant by Holm-Bonferroni correction.

Table. Age-Adjusted Cancer Death Rates for the Most Common Causes of Death From Cancer by Cancer Type, Gender, Race, and Ethnicity in the US in 2000, 2010, 2020, and 2020

Cancer site or type	Age-adjusted death rate, per 100 000 population (95% CI)																			
	Non-Hispanic individuals				Asian or Pacific Islander				Black or African American				White				Hispanic individuals			
	2000	2010	2020	2020	2000	2010	2020	2020	2000	2010	2020	2020	2000	2010	2020	2020	2000	2010	2020	2020
Men	175.2 (163.0-187.4)	191.8 (180.9-202.7)	141.8 (135.0-148.7)	151.0 (146.4-155.6)	131.8 (128.5-135.0)	105.6 (103.5-107.8)	344.8 (340.8-348.7)	271.1 (268.0-274.3)	205.0 (202.7-207.2)	247.7 (246.7-248.7)	212.6 (211.7-213.4)	176.6 (175.9-177.3)	149.4 (146.9-151.8)	149.4 (146.9-151.8)	171.7 (171.3-172.1)	122.1 (120.4-123.8)				
Women	122.1 (113.9-130.4)	129.2 (121.9-136.5)	106.9 (101.5-112.2)	100.8 (97.7-103.9)	94.1 (91.8-96.3)	80.9 (79.3-82.5)	196.9 (194.6-199.2)	171.4 (169.5-173.3)	142.9 (141.4-144.4)	170.0 (169.3-170.7)	150.6 (150.0-151.3)	129.4 (129.4-130.0)	99.4 (97.7-101.0)	99.4 (97.7-101.0)	110.8 (108.6-113.1)	90.4 (89.1-91.6)				
Men	5.9 (4.0-8.4)	5.4 (3.7-7.4)	4.6 (3.4-6.0)	2.6 (2.1-3.3)	3.1 (2.6-3.5)	2.5 (2.1-2.8)	11.2 (10.5-11.8)	7.7 (7.2-8.2)	4.5 (4.1-4.8)	7.8 (7.6-8.0)	8.2 (8.0-8.3)	7.4 (7.3-7.6)	4.1 (3.7-4.5)	4.1 (3.7-4.5)	4.6 (4.0-5.1)	3.3 (3.0-3.5)				
Stomach	7.3 (5.0-11.3)	6.9 (5.0-9.2)	5.7 (4.4-7.3)	12.3 (10.9-13.6)	8.4 (7.6-9.3)	5.3 (4.9-5.8)	12.9 (12.1-13.6)	9.5 (8.9-10.1)	6.6 (6.2-7.0)	5.3 (5.2-5.5)	3.6 (3.5-3.8)	2.8 (2.7-2.9)	7.6 (7.1-8.2)	7.6 (7.1-8.2)	9.8 (9.0-10.7)	5.5 (5.1-5.8)				
Colon and rectum	19.7 (15.6-23.9)	17.7 (14.4-21.0)	16.1 (13.7-18.4)	16.3 (14.8-17.8)	13.3 (12.3-14.3)	10.6 (9.9-11.2)	35.2 (34.0-36.5)	28.2 (27.2-29.2)	21.5 (20.8-22.2)	24.6 (24.3-25.0)	18.3 (18.1-18.6)	14.9 (14.7-15.1)	17.7 (15.0-16.6)	15.8 (15.0-16.6)	17.7 (16.6-18.8)	12.9 (12.4-13.5)				
Liver and intrahepatic bile ducts	9.3 (6.9-12.4)	15.3 (12.4-18.2)	14.1 (12.0-16.2)	16.3 (14.9-17.7)	14.9 (13.9-15.9)	11.9 (11.2-12.6)	9.7 (9.1-10.3)	12.7 (12.1-13.3)	12.1 (11.6-12.7)	5.8 (5.7-6.0)	7.5 (7.4-7.7)	8.4 (8.3-8.6)	12.9 (12.2-13.6)	12.9 (12.2-13.6)	10.7 (9.9-11.6)	12.2 (11.7-12.7)				
Pancreas	6.9 (4.9-9.6)	10.8 (8.5-13.4)	9.9 (8.1-11.7)	7.8 (6.7-8.9)	8.1 (7.3-8.9)	8.1 (7.6-8.7)	16.0 (15.2-16.8)	16.0 (15.4-16.9)	15.0 (14.4-15.6)	12.2 (11.9-12.4)	12.9 (12.7-13.1)	13.2 (13.0-13.4)	9.4 (8.8-10.0)	9.4 (8.8-10.0)	9.4 (8.6-10.2)	9.3 (8.9-9.8)				
Lung and bronchus	48.1 (41.8-54.4)	53.0 (47.4-58.5)	30.6 (27.4-33.7)	40.9 (38.5-43.2)	34.0 (32.3-35.6)	23.6 (22.6-24.6)	102.4 (100.4-104.5)	75.6 (74.0-77.2)	45.6 (44.5-46.6)	77.8 (77.3-78.4)	62.7 (62.2-63.1)	40.7 (40.4-41.0)	29.5 (28.4-30.7)	29.5 (28.4-30.7)	38.9 (37.2-40.6)	18.5 (17.8-19.2)				
Prostate	21.9 (17.4-27.3)	18.1 (14.3-21.9)	12.8 (10.5-15.0)	12.5 (11.0-14.0)	9.6 (8.6-10.6)	8.8 (8.2-9.5)	68.8 (66.9-70.7)	49.0 (47.5-50.5)	36.5 (35.4-37.5)	28.0 (27.7-28.4)	20.3 (20.0-20.6)	17.6 (17.4-17.8)	18.4 (17.4-19.3)	18.4 (17.4-19.3)	21.6 (20.0-23.0)	14.2 (13.6-14.9)				
Kidney and renal pelvis	6.4 (4.5-9.0)	8.9 (6.8-11.5)	6.6 (5.2-8.1)	2.9 (2.3-3.5)	2.9 (2.5-3.4)	2.4 (2.0-2.7)	6.3 (5.8-6.9)	5.4 (4.9-5.8)	5.1 (4.7-5.4)	6.3 (6.1-6.4)	6.0 (5.8-6.1)	5.3 (5.2-5.4)	5.0 (4.6-5.4)	5.0 (4.6-5.4)	5.3 (4.7-5.8)	4.6 (4.2-4.9)				
Bladder	NR	4.8 (3.1-7.1)	3.9 (2.8-5.3)	2.4 (1.9-3.2)	2.9 (2.4-3.4)	2.9 (2.5-3.2)	5.6 (5.1-6.2)	5.7 (5.3-6.2)	4.8 (4.4-5.2)	8.1 (7.9-8.3)	8.5 (8.3-8.7)	7.7 (7.5-7.8)	3.8 (3.4-4.3)	3.8 (3.4-4.3)	4.1 (3.5-4.7)	3.5 (3.2-3.8)				
Brain and other central nervous system	3.1 (1.8-5.2)	3.7 (2.5-5.3)	2.2 (1.5-3.2)	2.2 (1.7-2.8)	2.6 (2.2-3.0)	3.1 (2.8-3.5)	3.2 (2.9-3.6)	3.1 (2.8-3.4)	3.5 (3.2-3.8)	6.1 (6.0-6.3)	5.9 (5.7-6.0)	6.3 (6.1-6.4)	3.5 (3.1-3.8)	3.5 (3.1-3.8)	3.7 (3.2-4.1)	3.5 (3.3-3.8)				
Non-Hodgkin lymphoma	6.4 (4.3-9.1)	4.4 (3.0-6.4)	4.7 (3.5-6.2)	5.8 (4.9-6.7)	4.7 (4.1-5.3)	3.9 (3.5-4.3)	6.2 (5.7-6.7)	5.2 (4.8-5.6)	4.1 (3.7-4.4)	10.5 (10.3-10.7)	7.8 (7.7-8.0)	6.3 (6.2-6.5)	5.8 (5.3-6.3)	5.8 (5.3-6.3)	7.6 (6.9-8.3)	5.0 (4.7-5.4)				
Leukemia	5.6 (3.6-8.1)	8.3 (6.0-11.2)	4.5 (3.4-5.9)	5.1 (4.3-5.9)	5.6 (4.9-6.3)	4.1 (3.6-4.5)	9.1 (8.5-9.8)	7.5 (7.0-8.0)	6.7 (6.3-7.1)	10.7 (10.5-10.9)	9.8 (9.6-10.0)	8.2 (8.1-8.4)	6.0 (5.6-6.5)	6.0 (5.6-6.5)	6.9 (6.3-7.6)	5.0 (4.7-5.4)				
Myeloma	NR	3.3 (2.0-5.2)	2.0 (1.7-2.3)	1.8 (1.3-2.4)	2.5 (2.1-3.0)	2.0 (1.7-2.3)	8.9 (8.3-9.6)	8.1 (7.6-8.7)	7.0 (6.6-7.4)	4.4 (4.3-4.6)	3.9 (3.8-4.0)	3.6 (3.5-3.7)	3.6 (3.3-4.0)	3.6 (3.3-4.0)	3.7 (3.2-4.2)	3.1 (2.8-3.3)				
Women	NR	NR	NR	1.0 (0.7-1.3)	0.8 (0.6-1.0)	0.7 (0.5-0.8)	3.3 (3.0-3.6)	2.0 (1.8-2.2)	1.4 (1.3-1.6)	1.7 (1.7-1.8)	1.7 (1.6-1.7)	1.5 (1.4-1.6)	0.8 (0.7-1.0)	0.8 (0.7-1.0)	1.1 (0.9-1.4)	0.6 (0.5-0.7)				
Stomach	4.6 (3.1-6.5)	3.0 (2.0-4.3)	2.3 (1.6-3.3)	6.3 (4.8-8.2)	4.7 (4.1-5.2)	3.2 (2.9-3.5)	6.6 (6.2-7.1)	4.5 (4.2-4.8)	3.4 (3.2-3.6)	2.6 (2.5-2.7)	1.9 (1.8-2.0)	1.5 (1.4-1.5)	4.4 (4.1-4.8)	4.4 (4.1-4.8)	5.1 (4.6-5.6)	3.8 (3.6-4.1)				
Colon and rectum	11.7 (9.2-14.6)	12.5 (10.2-14.8)	10.4 (8.7-12.1)	10.1 (9.1-11.1)	10.0 (9.2-10.7)	7.5 (7.0-8.0)	24.2 (23.4-25.0)	18.2 (17.5-18.8)	13.2 (12.7-13.7)	17.2 (17.0-17.5)	12.8 (12.7-13.0)	10.5 (10.4-10.7)	9.5 (9.0-10.0)	9.5 (9.0-10.0)	11.4 (10.7-12.1)	8.2 (7.8-8.6)				

(continued)

Table. Age-Adjusted Cancer Death Rates for the Most Common Causes of Death From Cancer by Cancer Type, Gender, Race, and Ethnicity in the US in 2000, 2010, 2010, and 2020 (continued)

Cancer site or type	Age-adjusted death rate, per 100 000 population (95% CI)														
	Non-Hispanic individuals			Asian or Pacific Islander			Black or African American			White			Hispanic individuals		
	2000	2010	2020	2000	2010	2020	2000	2010	2020	2000	2010	2020	2000	2010	2020
Liver and intrahepatic bile ducts	4.8 (3.2-6.8)	5.5 (4.0-7.3)	6.3 (5.0-7.7)	7.5 (6.6-8.3)	6.2 (5.6-6.8)	4.9 (4.5-5.3)	3.6 (3.3-4.0)	4.4 (4.1-4.7)	4.5 (4.3-4.8)	2.6 (2.5-2.7)	3.2 (3.1-3.2)	3.8 (3.7-3.8)	4.9 (4.4-5.4)	5.4 (5.0-5.8)	5.9 (5.6-6.2)
Pancreas	6.1 (4.4-8.3)	7.7 (6.0-9.7)	7.9 (6.5-9.4)	7.1 (6.3-8.0)	7.6 (6.9-8.2)	7.1 (6.6-7.6)	12.9 (12.3-13.5)	12.4 (11.9-12.9)	12.1 (11.7-12.5)	9.1 (9.0-9.3)	9.6 (9.4-9.7)	9.7 (9.5-9.8)	7.5 (6.9-8.1)	8.0 (7.5-8.5)	8.1 (7.7-8.5)
Lung and bronchus	28.2 (24.4-32.1)	33.0 (29.3-36.7)	23.6 (21.1-26.1)	18.3 (16.9-19.6)	18.4 (17.4-19.5)	14.7 (14.0-15.3)	40.4 (39.4-41.4)	37.3 (36.4-38.2)	25.0 (24.4-25.7)	44.1 (43.7-44.4)	41.7 (41.3-42.0)	30.3 (30.1-30.6)	14.7 (13.8-15.5)	13.8 (13.2-14.5)	10.8 (10.4-11.2)
Female breast	15.6 (12.8-18.5)	14.7 (12.3-17.0)	13.7 (11.7-15.6)	12.3 (11.3-13.3)	11.9 (11.1-12.7)	11.4 (10.8-12.0)	35.1 (34.1-36.0)	31.3 (30.5-32.1)	26.4 (25.7-27.1)	26.8 (26.5-27.1)	22.1 (21.9-22.4)	19.4 (19.1-19.6)	16.9 (16.1-17.8)	14.4 (13.7-15.0)	13.1 (12.7-13.6)
Cervix uteri	3.1 (2.1-4.6)	2.8 (1.9-4.0)	1.9 (1.3-2.8)	2.8 (2.3-3.3)	1.7 (1.4-2.0)	1.7 (1.5-2.0)	5.5 (5.2-5.9)	4.0 (3.7-4.3)	3.2 (3.0-3.5)	2.3 (2.3-2.4)	2.0 (2.0-2.1)	2.1 (2.0-2.2)	4.0 (3.6-4.4)	2.6 (2.4-2.9)	2.4 (2.3-2.6)
Corpus and uterus, part unspecified	NR	3.4 (2.3-4.8)	3.1 (2.3-4.2)	2.4 (1.9-2.9)	3.0 (2.6-3.4)	3.8 (3.4-4.1)	7.4 (6.9-7.8)	7.7 (7.3-8.1)	9.4 (9.0-9.7)	3.9 (3.8-4.0)	4.2 (4.1-4.3)	4.7 (4.6-4.8)	3.1 (2.7-3.5)	3.4 (3.1-3.7)	4.4 (4.1-4.6)
Ovary	3.8 (2.4-5.6)	6.5 (5.0-8.4)	5.2 (4.1-6.5)	4.8 (4.2-5.5)	4.8 (4.3-5.3)	4.4 (4.1-4.8)	7.3 (6.9-7.7)	6.8 (6.4-7.2)	5.4 (5.2-5.7)	9.5 (9.3-9.6)	8.3 (8.2-8.5)	6.3 (6.2-6.4)	6.4 (5.9-4.0)	5.6 (5.2-5.9)	4.5 (4.2-4.8)
Kidney and renal pelvis	2.9 (1.7-4.4)	3.7 (2.6-5.3)	3.2 (2.4-4.3)	1.1 (0.8-1.5)	1.2 (0.9-1.4)	0.9 (0.9-1.3)	2.8 (2.5-3.1)	2.6 (2.4-2.9)	2.2 (2.0-2.4)	2.9 (2.8-3.0)	2.6 (2.5-2.7)	2.2 (2.1-2.2)	2.2 (1.9-2.5)	2.5 (2.2-2.7)	1.9 (1.7-2.1)
Bladder	NR	NR	1.4 (0.8-2.2)	0.9 (0.6-1.3)	1.0 (0.8-1.3)	0.8 (0.6-1.0)	2.7 (2.4-3.0)	2.6 (2.4-2.8)	2.1 (1.9-2.3)	2.3 (2.3-2.4)	2.3 (2.2-2.4)	2.1 (2.0-2.1)	1.2 (0.9-1.4)	1.3 (1.1-1.5)	1.2 (1.0-1.3)
Brain and other central nervous system	2.1 (1.2-3.3)	2.7 (1.9-3.9)	2.4 (1.6-3.4)	1.6 (1.3-2.1)	1.9 (1.6-2.2)	1.9 (1.6-2.1)	2.3 (2.0-2.5)	2.1 (1.9-2.3)	2.3 (2.1-2.5)	4.0 (3.9-4.1)	3.8 (3.7-3.9)	4.1 (4.0-4.2)	2.5 (2.2-2.9)	2.2 (2.0-2.5)	2.6 (2.4-2.8)
Non-Hodgkin lymphoma	5.5 (3.9-7.6)	3.0 (1.9-4.4)	2.3 (1.6-3.2)	4.3 (3.6-4.9)	3.1 (2.7-3.6)	2.6 (2.3-2.9)	3.9 (3.6-4.3)	3.4 (3.1-3.6)	2.3 (2.1-2.5)	7.0 (6.8-7.1)	4.9 (4.8-5.0)	3.7 (3.6-3.8)	5.1 (4.6-5.6)	4.3 (3.9-4.6)	3.1 (2.9-3.4)
Leukemia	4.1 (2.8-5.9)	4.3 (3.1-5.8)	2.6 (1.8-3.6)	3.1 (2.5-3.6)	3.3 (2.8-3.7)	2.3 (2.1-2.6)	5.3 (5.0-5.7)	4.7 (4.4-5.0)	3.9 (3.6-4.1)	6.1 (6.0-6.2)	5.4 (5.3-5.6)	4.6 (4.5-4.7)	4.2 (3.8-4.7)	4.0 (3.7-4.4)	3.2 (3.0-3.4)
Myeloma	3.2 (1.9-5.0)	2.3 (1.4-3.5)	1.9 (1.2-2.8)	1.6 (1.2-2.1)	1.2 (1.0-1.5)	1.1 (0.9-1.3)	6.9 (6.5-7.3)	5.7 (5.3-6.0)	4.9 (4.6-5.2)	3.0 (2.9-3.1)	2.5 (2.4-4.6)	2.2 (2.1-2.3)	2.8 (2.4-3.2)	2.4 (2.1-2.7)	2.1 (1.9-2.3)

Abbreviation: NR, not reliable.

Discussion

In the US, the overall rate of cancer deaths among Hispanic individuals steadily decreased between 1999 and 2020, but despite this progress, certain gastrointestinal and gynecologic cancer death rates increased. Additionally, CSM rates among Hispanic men aged between 25 and 34 years increased, potentially due to increasing CRC and testis cancer mortality rates. Cancer mortality inequities were further emphasized when comparing racial and ethnic groups in 2020, as Hispanic patients generally had higher rates.

Increases in liver cancer mortality rates among both Hispanic men and women from 1999 to 2020 are supported by prior data^{2,3} and may be associated with a higher incidence of liver cancer due to greater prevalence of risk factors including hepatitis B and C viral infections, alcohol consumption, smoking, and aflatoxin exposure.⁸ Among Hispanic women, the substantial increase in uterine cancer mortality was likely associated with increased incidence of uterine cancers between 2013 and 2017.² Trends in increasing death rates from pancreatic cancer among Hispanic women may be associated with significantly increasing rates of early-onset pancreatic cancer.⁹ Declines in lung cancer incidence and cigarette smoking and the development of new therapeutics have likely contributed to the large decrease in lung cancer deaths observed for both Hispanic men and women.¹⁰

Increasing rates of mortality from CRC and testis cancers likely contributed to the overall increasing cancer mortality rate among Hispanic men aged 25 to 34 years. DeRouen et al¹¹ observed worse overall and testicular cancer-specific survival among Hispanic adults and young adults compared with non-Hispanic White adults and young adults. Colorectal cancer mortality trends were previously found to have increased from 2013 to 2017 for Hispanic individuals from birth to age 49 years (AAPC, 1.4%; $P < .05$) (eTable 5 in Supplement 1),¹² consistent with our findings for Hispanic men aged 25 to 34 and 35 to 44 years.

In 2020, Hispanic individuals had the second highest mortality rates compared with other ethnic and racial groups for several cancers. In 2000 and 2010, Hispanic women had the third highest rate of death from stomach cancer after non-Hispanic Asian or Pacific Islander and non-Hispanic Black or African American women and the highest death rate in 2020. Hispanic women had lower rates of death from non-Hodgkin lymphoma compared with non-Hispanic American Indian or Alaska Native women in 2000 but had higher rates in 2010 and

2020. Hispanic men had a lower rate of death from liver cancer compared with non-Hispanic Asian or Pacific Islander men and non-Hispanic American Indian or Alaska Native men in 2010 but a higher rate than non-Hispanic Asian or Pacific Islander men in 2020.

Our findings of differential gains of improved cancer mortality rates within the Hispanic community suggest that systemic health care inequities have likely contributed to these disparities, leading to decreased access to care, nonadherence to treatment, and poor care continuity. Hispanic patients are more likely to be diagnosed at advanced cancer stages, leading to worse survival rates, even after controlling for socioeconomic status.¹³ There is an underrepresentation of racial and ethnic minority populations in cancer clinical trials relative to their cancer burden.^{14,15} Hispanic patients remain vulnerable to cancer inequalities because of disproportionate poverty and barriers to quality care, including lack of insurance.⁴ Future studies should focus on understanding the consequences of cultural and social inequities for cancer mortality.

Limitations

Study limitations include missing data for individuals with undocumented status and potential cause of death misclassification. The database is limited by lack of information about cancer stage at diagnosis, treatments received, Hispanic subgroups, and the effects of individuals who migrate from 1 geographic location to another. Factors influencing cancer mortality rates were not accounted for in the CDC WONDER database; however, investigating income, insurance, educational level, and individual-level factors of Hispanic individuals is an important follow-up study.

Conclusion

In this cross-sectional study, although overall CSM rates among Hispanic individuals decreased from 1999 to 2020, rates of liver, pancreas, and uterine cancers increased. Cancer-specific mortality also increased among young Hispanic men, and there were regional disparities in liver and uterine cancer death rates. The observed disparities in cancer mortality may be associated with increases in cancer incidence, financial and cultural barriers to health care, lack of cancer screenings, and diagnosis at advanced stages of the disease. Future studies are needed to implement sustainable solutions to reverse these trends in the growing US Hispanic population.

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