

Changes in Physician Work Hours and Implications for Workforce Capacity and Work-Life Balance, 2001-2021

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[+ Supplemental content](#)

IMPORTANCE Physician work hours are an underexplored facet of the physician workforce that can inform policy for the rapidly changing health care labor market.

OBJECTIVE To examine trends in individual physician work hours and their contribution to clinical workforce changes over a 20-year period.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional study focused on active US physicians between January 2001 and December 2021 who were included in the Current Population Survey. Outcomes for physicians, advanced practice professionals (APPs), and nonphysician holders of doctoral degrees were compared, and generalized linear models were used to estimate differences in time trends for weekly work hours across subgroups.

MAIN OUTCOMES AND MEASURES Physician and APP workforce size, defined as the number of active clinicians, 3-year moving averages of weekly work hours by individual physicians, and weekly hours contributed by the physician and APP workforce per 100 000 US residents.

RESULTS A total of 87 297 monthly surveys of physicians from 17 599 unique households were included in the analysis. The number of active physicians grew 32.9% from 2001 to 2021, peaking in 2019 at 989 684, then falling 6.7% to 923 419 by 2021, with disproportionate loss of physicians in rural areas. Average weekly work hours for individual physicians declined by 7.6% (95% CI, -9.1% to -6.1%), from 52.6 to 48.6 hours per week from 2001 to 2021. The downward trend was driven by decreasing hours among male physicians, particularly fathers (11.9% decline in work hours), rural physicians (-9.7%), and physicians aged 45 to 54 years (-9.8%). Physician mothers were the only examined subgroup to experience a statistically significant increase in work hours (3.0%). Total weekly hours contributed by the physician workforce per 10 000 US residents increased by 7.0%, from 13 006 hours in 2001 to 2003 to 13 920 hours in 2019 to 2021, compared with 16.6% growth in the US population over that time period. Weekly hours contributed by the APP workforce per 100 000 US residents grew 71.2% from 2010 through 2012 to 2019 through 2021.

CONCLUSIONS AND RELEVANCE This cross-sectional study showed that physician work hours consistently declined in the past 20 years, such that physician workforce hours per capita lagged behind US population growth. This trend was offset by rapid growth in hours contributed by the APP workforce. The gap in physician work hours between men and women narrowed considerably, with diverging potential implications for gender equity. Increasing physician retirement combined with a drop in active physicians during the COVID-19 pandemic may further slow growth in physician workforce hours per capita in the US.

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During the COVID-19 pandemic, the health care workforce in the US has experienced substantially increased turnover and shortages across all professions, including physicians.¹⁻⁴ National surveys during the pandemic have found that nearly 1 in 4 physicians intended to quit in the upcoming 2 years, while 1 in 3 physicians, particularly women, planned to reduce their work hours.⁵ Given pre-pandemic data showing that 40% of physicians, including more than 50% of female physicians, have high levels of burnout,⁶ many have raised concerns about the resilience of the physician workforce and the implications for health care workforce policy.

An underexplored facet of the physician workforce, in the context of a rapidly changing labor market, is physicians' work hours. It cannot be assumed that physician work hours are stable given that prior research found a sharp drop in physician work hours from 1996 to 2008 after decades of stability.⁷ While there is vigorous debate about the nature and magnitude of a physician shortage,⁸⁻¹⁰ discussion often focuses on the absolute number of physicians in the US rather than the intensity of work contributed by individual physicians. There has been little evidence examining recent trends in physician work hours, especially in light of the major disruptions to the health care system since 2020 and the potential contributions of other health care professionals such as nurse practitioners (NPs) and physician assistants (PAs).

Changes in physician work hours could influence multiple policy debates. The first is the debate around projecting physician supply as older physicians, who historically work more hours, retire and are replaced by younger physicians and advanced practice professionals (APPs) such as NPs. Another active debate is the effect of burnout, which is positively associated with work hours, on the physician workforce.^{6,11} Recent surveys suggest that many physicians plan to reduce their work hours, but the degree to which physicians have actually cut back on working hours is unknown.⁵ Third, there is continued focus on gender disparities in physician salary and work expectations. Female physicians earn substantially less, perform more household and childcare duties, and receive more clinical requests than their male counterparts.^{5,12-14} Changing trends in work hours by gender have important implications for gender disparities in the physician workforce. Finally, changes in the physician workforce also influence the ongoing policy debate around the role of NPs and PAs, and persistent disputes around expanding scope of practice for these APPs.¹⁵⁻¹⁷ To address this evidence gap, we used 2 decades of federal survey data on the labor workforce from 2001 to 2021 to examine changes in physician work hours across multiple demographic groups and changes in the size and total hours contributed by the physician and APP workforces.

Methods

Data Sources

We used nationally representative data from the monthly Current Population Survey (CPS) from January 2001 to December 2021. The CPS is a federally administered survey by

Key Points

Question How have physician work hours, including total work hours contributed by the physician workforce, changed since 2001?

Findings In this cross-sectional study of 87 297 monthly surveys of physicians from 17 599 unique households, average weekly hours worked by individual physicians declined by 7.6% from 2001 to 2021, driven by a decrease among men, particularly fathers, while mothers' hours increased. Total weekly hours contributed by the physician workforce per capita grew at less than half the rate of US population growth, while advanced practice professional workforce hours rose considerably over the same period.

Meaning Over 2 decades, physicians' average weekly work hours consistently declined, more among men than women, with both positive and negative implications for gender equity; lagging growth in hours contributed by the physician workforce per capita was offset by a growing advanced practice professional workforce.

the US Census Bureau of approximately 60 000 households per month that includes individual-level data on all civilian household members older than 16 years who are not institutionalized.¹⁸ Households are interviewed monthly for 8 months in the course of 1 year. During the COVID-19 pandemic, the CPS survey mode transitioned from a mix of in-person and telephone interviewing to telephone-only interviewing.¹⁹ This caused the monthly survey response rate to drop from 81% to 84% in 2019 to 65% to 80% in March 2020 through December 2021. Per Harvard University's institutional policy, institutional review board approval and written informed consent were not required for research using publicly available data.

Identifying Clinicians and Comparison Groups

Using occupational data in the CPS, we applied the following 3 criteria to define respondents as physicians: (1) self-identifying as a physician (eMethods 1 in the [Supplement](#)), (2) working greater than zero hours, and (3) employment in a hospital or clinical setting. Because the CPS does not identify resident physician trainees, we used respondents' age of younger than 35 years as a proxy for being a resident, an approach which captures the majority of resident physicians.⁷

For comparison, we examined APPs and advanced degree holders besides physicians. We defined PAs and NPs as (1) CPS respondents self-identifying as a PA or NP (eMethods 1 in the [Supplement](#)), (2) working greater than zero hours, and (3) working in a hospital or clinical setting. The CPS began collecting data on NPs starting in 2011, so data on this group were unavailable for the first decade of the study period. Finally, we used nonphysician professionals as an additional comparison group, defined as all holders of doctorate or professional school degrees, excluding physicians (eMethods 1 in the [Supplement](#)).

Study Outcomes

We estimated the workforce size for physicians, NPs, and PAs using nationally representative weights from the CPS. We also calculated a national estimate for weekly hours contributed

by the physician workforce per 100 000 US residents (hereafter, physician workforce hours) by multiplying physician workforce size and average hours worked per week, then dividing by US residents in increments of 100 000 using annual data on the US population from The World Bank.²⁰ We used the same procedure to calculate the workforce size of the other professional groups that we examined (PAs, NPs, and nonphysician holders of doctoral degrees).

We estimated average weekly work hours for individual physicians using the “total hours worked last week” variable in the CPS survey instrument. Survey respondents were asked to report the total hours they worked at all jobs during the week that contained the 12th day of the month. The CPS also asks respondents about their “usual” hours worked weekly, but because this was missing for 11% of physicians, we used the “total hours worked last week” variable as previous studies have done.⁷ The resulting data aligned with those from the American Time Use Survey, a detailed, but much smaller, survey on how individuals in the US spend their time administered to a subset of CPS respondents (eTable 1 in the Supplement).

Study Covariates

We analyzed weekly work hours for individual physicians across subgroups by multiple covariates: sex; parents vs non-parents (defined as respondents with any child younger than 18 years living in the household); mothers vs fathers (ie, parents by self-identified sex); residents (physicians younger than 35 years); attendings by age group (35-44, 45-54, 55-64, and >65 years); full-time vs part-time employee (<30 hours per week, as per the Internal Revenue Service definition)²¹; urban vs rural (urban physicians were those residing in a metropolitan area; all others were rural); census region (Northeast, South, Midwest, and West)²²; foreign vs domestic birthplace (as defined by the CPS)²³; and race (classified as American Indian and Pacific Islander [categorized together owing to small sample sizes], Asian, Black, and White by respondent self-report). We also captured single-earner vs dual-earner households (>1 individual in the household working any hours for pay).

Statistical Analysis

For unadjusted analyses of trends over time, we estimated 3-year moving averages of individual work hours, workforce size, and workforce hours per capita using survey weights from the CPS to produce nationally representative estimates. We used 3-year moving averages to capture long-term trends and smooth year-to-year variability across the 20-year study period. We additionally conducted a pandemic-focused analysis using annual averages in the 2019 to 2021 period, comparing workforce size and weekly work hours in 2019 vs 2021. Unadjusted standard errors for percentage change over time were calculated using a formula provided by the US Census Bureau (eMethods 2 in the Supplement).

We examined the effect of the pandemic period on the time trend of weekly work hours for individual physicians. We used ordinary least squares to calculate the linear predicted time trend in work hours in the absence of the pandemic (excluding 2020-2021 from the analysis), then compared the pre-

dicted time trend with the observed time trend, adjusting for all covariates listed in Table 1.

We separately examined time trends in weekly work hours by individual physicians for subgroups by patient demographics defined previously, comparing subgroups to each other within categories. We used generalized linear models with robust standard errors clustered at the household level to test the statistical significance of differences in time trends within subgroup categories. A continuous measure of work hours per week was the independent variable in these models. For each subgroup category, we implemented a model that included an interaction term in which a categorical variable indicating subgroup was interacted with a linear term for year to yield a statistical test of differences in time trends between female and male respondents. Models were adjusted for all characteristics in Table 1. The models tested a 2-sided statistical significance at $\alpha = .05$. Analyses were conducted using Stata statistical software, version 17.0 (StataCorp).

Results

Study Sample

The physician sample included 87 297 monthly surveys of physicians from 17 599 unique households over 20 years. The demographic characteristics of physicians evolved over the course of the 20-year study period (Table 1). There were substantial increases in the proportion of female physicians (29.2% in 2001-2003 to 38.4% in 2019-2021; $P < .001$) and non-White physicians (18.6% in 2001-2003 to 25.4% in 2019-2021; $P < .001$). The share of physicians older than 65 years more than doubled during the study period, increasing from 5.5% to 12.2% ($P < .001$). The proportion of physicians working part time (<30 hours per week) remained stable at 8% throughout the study period ($P = .85$).

Overall Trends in Workforce Size and Weekly Hours Worked

The physician workforce grew 32.9% over the course of the study period, from a 3-year moving average of 711 483 in 2001 through 2003 to 945 320 in 2019 through 2021 (Figure 1A). However, the 3-year moving average of physician weekly work hours dropped by 7.6% (95% CI, -9.1% to -6.1%) from 52.6 to 48.6 hours per week between 2001 and 2021. Of this decrease, 3.0% (95% CI, -4.5% to -1.5%) occurred over the most recent decade (2010-2012 to 2019-2021) (Table 2 and Figure 2). The adjusted linear time trend for weekly work hours decreased by 0.17 (95% CI, -0.19 to -0.15) hours per year from 2001 to 2021. Exclusion of the pandemic years 2020 and 2021 from the analysis did not statistically significantly change the time trend (-0.16 hours; 95% CI, -0.18 to -0.14 hours).

In contrast with physician trends, the PA workforce grew by 86.0% from 2001 to 2021, and the NP workforce increased by 110.5% from 2011 to 2021, with both workforces continuing to grow during the first 2 years of the pandemic (Figure 1A). Hours for PAs decreased 5.8% (95% CI, -8.9% to -2.8%) during the study period, from 40.0 to 37.7 hours per week (eTable 2 in the Supplement). Weekly hours for NPs increased slightly

Table 1. Physician Workforce Demographics, 2001-2021

Characteristic	Respondents, %			P value ^a
	2001-2003	2010-2012	2019-2021	
Age, y				
35-44	30.1	26.0	25.7	<.001
45-54	30.1	25.7	22.6	
55-64	14.1	20.3	18.7	
≥65	5.5	9.3	12.2	
Sex				
Female	29.2	33.5	38.4	<.001
Male	70.9	66.5	61.7	
Race				
American Indian and Pacific Islander ^b	0.3	1.2	1.5	<.001
Asian	13.9	15.6	17.7	
Black	4.4	5.1	6.2	
White	81.5	78.2	74.7	
Parental status ^c				
Parent	43.4	39.9	38.7	<.001
Nonparent	56.6	60.1	61.3	
Parent				
Mother	11.1	13.5	15.4	<.001
Father	32.3	26.4	23.2	
Work status				
Full time	92.1	91.9	92.0	.85
Part time ^d	8.0	8.1	8.0	
Other				
Foreign born	25.1	26.1	25.0	.12
Resident ^e	20.2	18.5	20.8	.26
Dual full-time earner household ^f	37.9	39.6	50.9	<.001
Residence				
Urban	85.6	89.0	90.1	<.001
Rural	14.2	10.6	9.5	
Census region				
Northeast	29.0	27.4	21.9	<.001
Midwest	24.2	21.6	18.9	
South	27.6	27.8	35.3	
West	19.2	23.2	23.8	

^a Data from 2001 to 2003 vs 2019 to 2021. Pearson χ^2 tests were used to test statistical significance.

^b Categorized together owing to small sample sizes.

^c Parents are defined as individuals with dependent minors in their households.

^d Part-time employment is defined as at least 30 hours per week, as per the definition used by the Internal Revenue Service.

^e Residents are defined as physicians younger than 35 years.

^f Single-income households are defined as having only 1 individual reporting working any hours for pay, whereas dual-income households were those that reported more than 1 individual working any hours for pay.

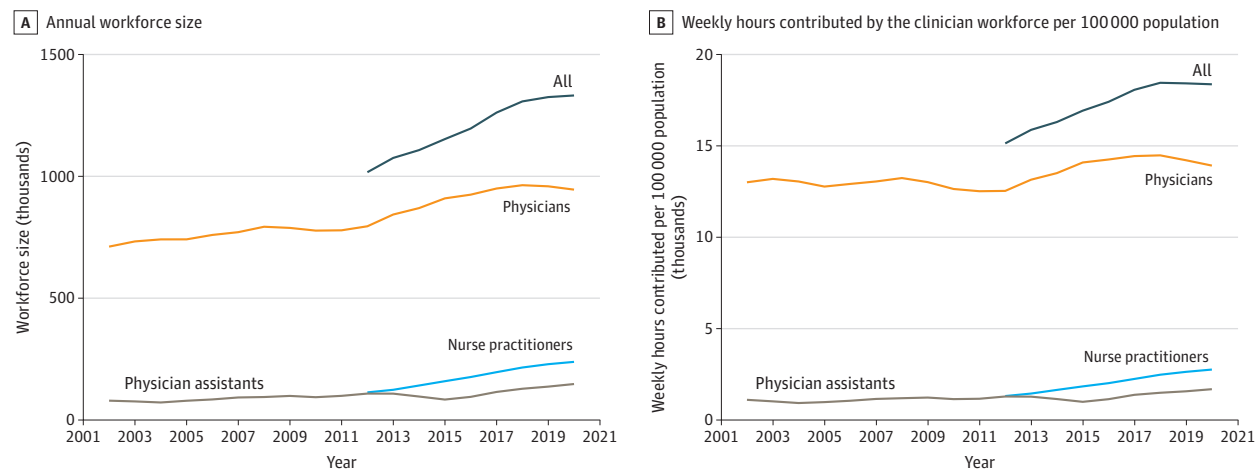
over 2011 to 2021, from 36.6 to 37.9 hours per week (relative increase, 3.5%; 95% CI, 1.2%-5.8%).

When combining physician workforce size and hours worked, weekly hours contributed by the physician workforce per 100 000 residents increased by 7.0% from 13 006 in 2001 to 2003 to 13 920 in 2019 to 2021 (Figure 1B), compared with 16.6% growth in the total US population from 2001 to 2021. Between 2010 and 2012 and 2019 and 2021, the decade when complete data on both physician and APP hours were available, physician workforce hours increased 11.0% (12 536 hours in 2010-2012 to 13 920 hours in 2019-2021), while APP workforce hours per 100 000 residents grew 71.2% from 2598 in 2010 to 2012 to 4448 in 2019 to 2021. Weekly hours contributed by the clinician workforce overall (physicians plus APPs) per 100 000 residents grew by 21.4% (15 134 hours in 2010-2012 to 18 369 hours in 2019-2021).

Trends by Subgroup in Weekly Work Hours for Individuals

There was substantial heterogeneity in trends for weekly work hours by individuals across different demographic subgroups of physicians (Table 2). Male physicians' weekly working hours decreased more than female physicians' hours over the study period (-8.1% vs -4.1%; $P = .001$). In 2001, male physicians worked about 5 more hours per week than female physicians (54.1 hours vs 48.8 hours; a difference of 5.3 hours), but the male-female gap narrowed by nearly half by the end of the study period (49.7 hours vs 46.8 hours; a difference of 2.9 hours; Figure 3). Physician fathers substantially decreased their working hours in comparison with physician mothers over the 20-year study period (-11.9% vs 3.0%; $P < .001$; Table 2 and Figure 3), a change that narrowed the work hour gap between mothers and fathers from 13.6 hours to

Figure 1. Trends in Size of the Clinician Workforce and Weekly Hours Contributed per 100 000 Population, 2001-2021



Includes individuals who self-identify as physicians, nurse practitioners, and physician assistants in the Current Population Survey, as well as the sum of all clinicians. Each data point represents a 3-year moving average (ie, the estimate for 2002 represents an average of the raw data from 2001-2003). Estimates are weighted using sampling weights. Population sizes are estimated by

dividing the sampling by 12 and summing weights within a given year and clinician group (eg, physicians). The weighted workforce size estimates are multiplied by the average work hours per year for a given clinician group, divided by the US population, in increments of 100 000 for that year.

5.7 hours across 2001 to 2021. Restricting the analysis to physician parents with children younger than 6 years, we found similar results: a 9.6% decrease in weekly work hours for fathers and 3.0% increase for physician mothers ($P < .001$).

Examining differences by age, physicians between the ages of 45 to 54 years had the largest decrease in work hours, with a 9.8% decrease in work hours in the past 20 years (52.0 hours to 46.9 hours per week; Table 2). Physicians older than 65 years had an increase in average work hours during the study period, though the change was not statistically significant due to a small sample size. Average weekly hours for residents dropped sharply in 2003 (eFigure 1 in the Supplement), likely due to new restrictions on duty hours. Since 2003, resident hours have been stable.

Trends in physician work hours between physicians of different races were largely similar (Table 2). Full-time physicians reduced weekly hours substantially over the study period (-8.1% ; 95% CI, -8.9% to -7.3%), a decline from 55.6 hours to 51.1 hours per week, whereas part-time physicians' working hours remained stable. Physicians from single-income vs dual-income households decreased work hours to a similar degree (-7.4% vs -9.0% ; $P = .34$). In the past 10 years, hours among rural physicians declined more than urban physicians (-9.7% vs -7.5% ; $P = .01$).

Nonphysician holders of doctoral and professional degrees also had decreases in weekly working hours, though the decline was smaller in magnitude compared with physicians (eTable 3 in the Supplement). Over the 20-year study period, weekly work hours for this group dropped 5.8% (95% CI, -6.2% to -5.4%), from 43.7 hours to 41.2 hours per week. Among nonphysician professionals, weekly work hours for men decreased more than weekly hours for women (-6.4% vs -2.0% ; $P < .001$; Figure 3).

Trends During the COVID-19 Pandemic

The number of clinically active physicians peaked in 2019 at 989 684, then fell by 66 265 in 2021 to 923 419 (6.7% relative decrease; eTables 4 and 5 in the Supplement). There was a smaller proportion of rural, White, and US-born physicians clinically active in 2021 compared with 2019. Average weekly work hours for individual physicians dipped substantially during the first 3 months of the pandemic (April to June 2020), then rebounded and returned to the prepandemic time trend for the remainder of the study period (eFigure 2 in the Supplement). Hours contributed by the physician workforce per 100 000 residents were 14 798 in 2019 but dropped to 13 498 in 2021, which was associated with the decrease in the number of active of physicians between 2019 and 2021.

Discussion

Across 2 decades, individual physicians' work hours consistently decreased with variable magnitude by age, sex, and family structure. Falling physician weekly hours appeared to be associated with full-time physicians (as opposed to a change in part-time physicians), younger physicians, and male physicians—particularly fathers—while mothers were 1 of the few demographic groups with an increase in work hours. The declining trend in weekly work hours did not have a statistically significant association with the pandemic, suggesting that pandemic-related factors, such as reduced demand for outpatient and elective services, was not a major driver of the findings. However, these findings may be partly explained by secular changes among all US residents with advanced graduate degrees. Decreasing work hours meant that total weekly hours contributed by the physician workforce per 10 000 US

Table 2. Trends in Average Weekly Work Hours Among Physicians and Physician Subgroups^a

Characteristic	No. ^b	Average weekly work hours			Relative change across time periods, % (95% CI)			P value for yearly time trend ^c	
		2001-2003	2010-2012	2019-2021	2010-2012 to 2019-2021	2001-2003 to 2019-2021	2010-2021	2001-2021	
All physicians	36 137	52.6	50.1	48.6	-3.0 (-4.5 to -1.5)	-7.6 (-9.1 to -6.1)	NA	NA	
Age, y									
35-44	9890	52.6	50.8	47.9	-5.7 (-7.5 to -3.9)	-8.9 (-10.6 to -7.2)	.03	<.001	
45-54	9486	52.0	50.0	46.9	-6.2 (-8.0 to -4.4)	-9.8 (-11.5 to -8.1)	.17	.004	
55-64	6366	48.6	49.4	48.3	-2.3 (-4.4 to -0.3)	-0.7 (-3.2 to 1.7)	.29	.05	
≥65	3211	38.5	39.3	39.8	1.3 (-2.5 to 5.2)	3.5 (-1.3 to 8.4)	Reference	Reference	
Sex									
Female	12 120	48.8	46.6	46.8	0.4 (-1.4 to 2.2)	-4.1 (-5.9 to -2.2)	.09	.001	
Male	24 017	54.1	51.8	49.7	-4.0 (-5.2 to -2.9)	-8.1 (-9.2 to -7.0)	Reference	Reference	
Race									
American Indian and Pacific Islander ^d	1173	51.4	51.5	45.8	-11.1 (-18.8 to -3.4)	-10.9 (-18.8 to -2.9)	.25	.02	
Asian	4830	52.1	49.4	48.6	-1.6 (-3.9 to 0.7)	-6.7 (-9.7 to -3.7)	.80	.85	
Black	1884	53.6	51.3	49.7	-3.1 (-4.4 to -1.9)	-7.4 (-8.7 to -6.1)	.30	.40	
White	28 250	54.4	51.4	49.5	-3.8 (-5.4 to -2.1)	-9.0 (-10.6 to -7.5)	Reference	Reference	
Parental status									
Parent	14 729	52.8	50.5	47.3	-6.8 (-8.2 to -5.4)	-10.6 (-11.9 to -9.2)	.04	.09	
Nonparent	21 408	52.4	49.9	49.4	-0.9 (-2.2 to 0.4)	-5.6 (-7.0 to -4.3)	Reference	Reference	
Parent									
Mother	4805	42.7	44.4	43.9	-1.1 (-3.8 to 1.6)	3.0 (-0.2 to 6.1)	.047	<.001	
Father	9924	56.3	53.5	49.6	-7.4 (-9.0 to -5.8)	-11.9 (-13.4 to -10.4)	Reference	Reference	
Training status									
Resident	7184	59.5	55.5	55.5	0.0 (-2.1 to 2.1)	-6.8 (-8.8 to -4.8)	.02	.97	
Attending	28 979	50.7	48.9	46.5	-4.8 (-5.9 to -3.7)	-8.2 (-9.3 to -7.2)	Reference	Reference	
Work status									
Full time	33 241	55.6	52.9	51.1	-3.4 (-4.2 to -2.5)	-8.1 (-8.9 to -7.3)	.34	<.001	
Part time	2896	17.5	17.5	17.5	0.0 (-4.5 to 4.5)	0.0 (-4.5 to 4.5)	Reference	Reference	
Country of origin									
Foreign born	9174	51.8	50.5	49.0	-3.0 (-4.9 to -1.1)	-5.4 (-7.3 to -3.5)	.92	.93	
US born	26 963	52.9	50.0	48.4	-3.2 (-4.3 to -2.1)	-8.5 (-9.6 to -7.4)	Reference	Reference	
Household income									
Dual earner	21 855	53.6	51.3	49.7	-3.1 (-4.4 to -1.9)	-7.4 (-8.7 to -6.1)	.63	.54	
Single earner	14 282	54.4	51.4	49.5	-3.8 (-5.4 to -2.1)	-9.0 (-10.6 to -7.5)	Reference	Reference	
Residence									
Urban	31 864	52.6	50.0	48.7	-2.7 (-3.7 to -1.7)	-7.5 (-8.5 to -6.5)	.01	.32	
Rural	4273	52.0	51.3	47.0	-8.4 (-11.6 to -5.2)	-9.7 (-12.8 to -6.7)	Reference	Reference	

Abbreviation: NA, not applicable.
^a Weekly work hours are self-reported hours worked in the previous week by physician respondents in the Current Population Survey. All demographic characteristics are self-reported.
^b Sample sizes are unweighted totals for the 3 time periods described (2001-2003, 2010-2012, and 2019-2021).
^c Statistical testing to compare subgroups to reference groups was completed using general linear regression models that included an interaction term in which a categorical variable indicating subgroup was interacted with a linear term for year to yield a statistical test of differences in time trends. Models were adjusted for all characteristics in Table 1.
^d Categorized together owing to small sample sizes.

residents increased at half the rate of population growth over the past 20 years. However, this slow growth was offset by rapid expansion of the APP workforce size, which led to a near doubling of the growth in clinician workforce hours per capita (ie, total hours contributed by both physicians and APPs) in the decade from 2010 to 2021.

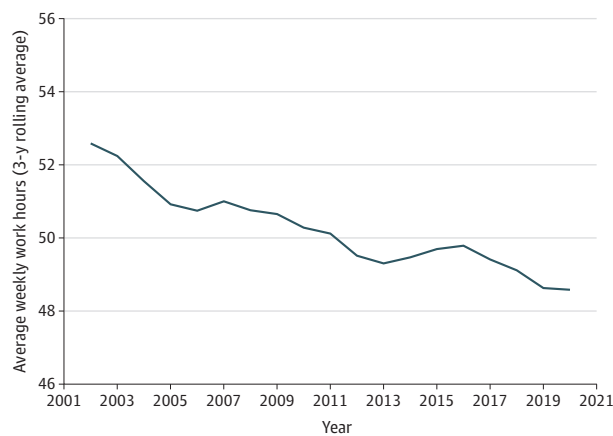
Interpretation of this pattern depends in part on projections of patient demand over the same period as well as the substitutability of physician and APP workforce hours, both debated topics without established consensus. To the extent that APP work hours can substitute for physician time, the expansion of the APP workforce appears to play a key role in

filling the gap between patient demand and physician supply. However, as the US population grows and medical technology expands, the physician workforce exit that began in 2020 may portend more pronounced physician shortages in local areas, particularly in rural North America.

One striking trend in these findings was the large decline in the work hour gap between male and female physicians, especially between physician fathers and mothers. This gap narrowed by more than half over the course of the study period, largely associated with a decline in work hours by fathers, with a small increase in work hours among mothers. This narrowing may partially address the well-documented gender gap in physician compensation, but only in regard to total hours worked, as opposed to revenue generated per hour.¹⁴ Falling work hours for men and fathers, among both physicians and nonphysicians with doctoral-level degrees, may reflect broadly changing attitudes toward work-life balance and perhaps greater sharing of domestic duties among the professional-level workforce. The increase in work hours among physician mothers, including those with children younger than 6 years, may suggest improvement over time in workplace accommodations for physician mothers. But the narrowing of the gender gap in physician work hours does not necessarily imply marked improvement in household gender equity in work-life balance. The gender gap in household labor has been declining since the 1960s, but women still do considerably more housework and childcare than men.²⁴⁻²⁶ The pandemic brought further challenges, with many physician mothers struggling with increased burden of responsibilities at work and at home,^{27,28} leading many to consider leaving clinical medicine.

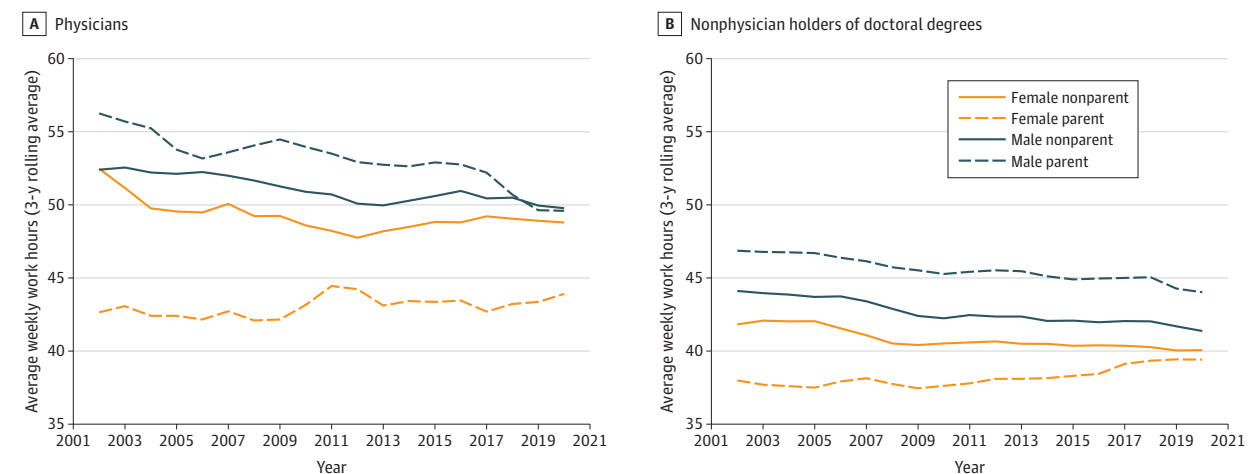
The present results have potentially important implications for physician workforce policy. While the workforce has become more diverse, a further increase in the number of Black, other minority, and female physicians is needed for the physician workforce to reflect the demographic diversity of the

Figure 2. Trends in Average Weekly Work Hours for Individual Physicians, 2001-2021



Self-reported hours worked in the previous week by physician respondents in the Current Population Survey. Each data point represents a 3-year moving average (ie, the estimate for 2002 represents an average of the raw data from 2001-2003). Estimates are weighted using sampling weights.

Figure 3. Trends in the Weekly Work Hours for Individual Physicians and Nonphysician Holders of Doctoral Degrees by Gender and Parental Status, 2001-2021



Self-reported hours worked in the previous week by physician respondents in the Current Population Survey. Each data point represents a 3-year moving average. Estimates are weighted using sampling weights. Mothers and fathers are defined by sex and the presence of dependent minors in the household.

US population. In addition, growth in the size of the physician workforce over the past 2 decades has been the key factor that has allowed physician hours to not fall further behind population growth. The impending retirement of a large cohort of older physicians may accelerate the decline in physician work hours.²⁹ While the APP workforce is still small compared with the physician workforce, the rapidly increasing number of APPs is offsetting the decreasing trend in physician hours, an important shift in the composition of the US clinical workforce.^{30,31} If physicians across the US continue to leave the workforce faster than new trainees graduate, policy makers and leaders in medical education will likely need to allocate resources to enlarge the training pipeline for both physicians and APPs. These findings highlight the potential importance of state legislation to expand the scope of practice for APPs, particularly to maintain health care access in vulnerable areas of the country.³²

Limitations

This study has limitations. First, the CPS lacks detailed information on physician specialty; although the CPS did start distinguishing between surgeons and medical doctors in the past 2 years, this distinction was too recent to use in this longitudinal study. Second, the response rate to the CPS dropped during the pandemic due to changes in CPS procedures, including cessation of in-person interviews. However, this mainly affected

less educated, lower-income respondents, a group that was mostly not included in this study of physician workers.¹⁹ Third, while the CPS does ask respondents to report “usual hours” worked per week, we used actual hours worked in the week prior to the survey data collection. The CPS-based estimates of actual hours worked may differ from other data sources, due in part to differences in how work hours are defined. However, the present results closely matched trends in the American Time Use Survey, a smaller survey using different methods. Fourth, the CPS only started collecting data on NPs in 2011 and in prior years grouped NPs with nurses. This limited the ability to analyze data on APPs for the full duration of the study period.

Conclusions

This cross-sectional study shows that physician work hours have consistently declined in the past 20 years. Growth in physician workforce hours per capita lagged behind US population growth, but this trend was offset by rapid growth in the APP workforce. The gap in physician work hours between men and women narrowed considerably, though the implications for gender equity could be mixed. Increasing physician retirement combined with a drop in active physicians during the COVID-19 pandemic may further slow growth in physician workforce hours per capita in the US.

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