



HHS Public Access

Author manuscript

Mayo Clin Proc. Author manuscript; available in PMC 2021 May 05.

Published in final edited form as:

Mayo Clin Proc. 2018 October ; 93(10): 1484–1487. doi:10.1016/j.mayocp.2018.02.018.

Sex differences in time spent on household activities and care of children among U.S. physicians, 2003–2016

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Abstract

Limited data exist on differences in time spent on household activities and child care between male and female physicians, which may influence sex differences in hours worked professionally. We studied sex differences among married physicians in time spent on household activities (e.g., cleaning and cooking) and child care (e.g., bathing and homework) from 2003–2016 using the American Time Use Survey (ATUS), a detailed time-use survey administered by the U.S. Census. Overall, we found that female physicians with children spent 100.2 (95% CI 67.0 to 133.3) more minutes/day on household activities and child care than male physicians, a finding that was qualitatively similar after adjustment for work hours outside the home of both spouses. These patterns may reflect societal norms that ultimately influence physician sex differences in hours worked professionally.

Introduction:

Limited data exist on differences in household effort between male and female physicians, which may influence sex differences in hours worked professionally. A prior study of physician-researchers found that women spent more time on domestic activities than men,¹ but this study used self-reported survey data regarding a “typical” day rather than detailed time-use survey data that may be less susceptible to gender bias in recall. Additionally, no evidence exists on sex differences in household effort among physicians overall and how these differences compare to other peer professions.

Methods:

We performed analyses using the American Time Use Survey (ATUS) from 2003–2016.² The ATUS is a nationally representative, U.S. Census-administered survey of approximately 26,000 households annually. Response rates range between 46.8% and 57.8% by year.³ The Harvard institutional review board waived study review.

The ATUS interview is conducted by telephone and includes a time-use diary, during which the interviewer obtains a detailed minute-by-minute account of the respondent’s previous day. The interviewer uses conversational interviewing to allow the respondent to report what

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he or she did accurately, asking questions such as “Yesterday at 4am, what were you doing?” “How long did you spend?” and “What did you do next?” The interview is later coded into activities, and two different coders code each interview for quality assurance. The ATUS has been used to estimate total time costs of outpatient visits and informal elder-care.^{4,5}

We examined sex differences in household activities (e.g., cleaning and cooking) and child care (e.g., bathing and homework) among married physicians and lawyers with and without household children. We examined whether sex differences in domestic work differed between physicians and lawyers. Differences in means were assessed with t-tests. In an sensitivity analysis of married physicians with children, we estimated a multivariable linear regression of time spent on household activities and child care as a function of sex, age, race and ethnicity, number of household children, weekend versus weekday, own weekly hours worked outside the home, and spouse’s weekly hours worked outside the home. Specialty was unavailable. We used ATUS-provided weights to make estimates nationally representative and used complex survey modules in Stata v15.0 to account for the survey’s complex sample design.

Results:

Our sample included 380 male physicians, 185 female physicians, 493 male lawyers, and 196 female lawyers who were married (Table 1). The percent of individuals with household children ranged between 51 and 73 percent.

Overall, female physicians with children spent 100.2 (95% CI 67.0 to 133.3) more minutes/day on household activities and child care than male physicians, and female lawyers with children spent 115.9 (95% CI 78.9 to 152.9) more minutes/day on these activities than male lawyers ($p=0.53$ for sex difference between physicians and lawyers) (Table 2).

Among married physicians with children, married physicians without children, and married lawyers with children, women spent considerably more time overall on household activities than men (e.g., 103.2 vs. 55.8 minutes/day for female vs. male physicians with children). Women in these three groups spent more time cleaning, doing laundry, and cooking. Men on average spent more time on maintenance and repair activities. Sex differences in overall time spent on household activities were not observed among married lawyers without children. Female physicians and lawyers spent significantly more time on child care than their male counterparts (52.8 more minutes/day for female physicians, 61.6 more minutes/day for female lawyers).

Results were qualitatively similar after adjustment for respondent and spouse hours worked outside the home (e.g., among physicians with children, female physicians spent 77.6 (95% CI 36.8 to 118.3) more minutes/day on household activities and child care than male physicians).

Discussion:

In a nationally-representative survey of detailed time-use patterns, female physicians spent more time on household activities and child care than male physicians, even after adjustment

for professional hours worked. Similar sex differences were observed among lawyers. These patterns may reflect societal norms that ultimately influence sex differences in hours worked professionally. These patterns may also help explain why professional hours worked by female physicians are lower for those with children than without.⁶ Study limitations include insufficient data to analyze trends over time and by physician specialty.

Conclusion:

Female physicians spend more time on household activities and child care than male physicians. These results, which may reflect societal norms, may influence sex differences in professional hours worked.

Acknowledgements and conflicts of interest:

The authors report funding from the Office of the Director, National Institutes of Health (Dr. Jena, NIH Early Independence Award, Grant 1DP5OD017897-01) and from the National Institute on Aging (Dr. Ly, Grant T32-AG000186). Dr. Jena reports receiving consulting fees unrelated to this work from Pfizer, Inc., Hill Rom Services, Inc., Bristol Myers Squibb, Novartis Pharmaceuticals, Vertex Pharmaceuticals, and Precision Health Economics, a company providing consulting services to the life sciences industry. No funding source played a role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication. Dan P. Ly had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Glossary

ATUS American Time Use Survey

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Table 1:

Characteristics of married physicians and lawyers in the American Time Use Survey, 2003–2016

	Married physicians		Married lawyers	
	Men (N=380)	Women (N=185)	Men (N=493)	Women (N=196)
Age, mean (95% CI)	47.9 (46.3–49.5)	43.2 (41.1–45.2)	50.3 (48.8–51.7)	42.6 (40.7–44.5)
Child under 18 present in household, percent (95% CI)	62.2 (54.5–69.8)	73.1 (63.6–82.6)	51.3 (45.4–57.2)	63.2 (54.8–71.6)
Hours worked per week outside the home, mean (95% CI)	54.9 (52.6–57.2)	43.1 (39.7–46.5)	49.0 (47.5–50.4)	43.5 (41.5–45.6)
Spouse's hours worked per week outside the home, mean (95% CI)	19.7 (16.6–22.8)	40.4 (37.0–43.8)	21.6 (19.0–24.2)	41.5 (38.6–44.4)

^aATUS=American Time Use Survey

^bAuthors' calculation using data from the ATUS from 2003 to 2016. Estimates use ATUS-provided weights to account for the complex sample design and are nationally representative.

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Table 2: Time spent on household activities and care of children by physicians and lawyers in the American Time Use Survey, 2003–2016

	Married physicians with children Minutes spent (95% CI)			Married physicians without children Minutes spent (95% CI)			Married lawyers with children Minutes spent (95% CI)			Married lawyers without children Minutes spent (95% CI)			p-value for difference between physicians and lawyers Minutes spent (95% CI)	
	Men (N=290)	Women (N=155)	Difference	Men (N=90)	Women (N=30)	Difference	Men (N=335)	Women (N=147)	Difference	Men (N=158)	Women (N=49)	Difference	With children	Without children
All household activities	55.8 (46.0–65.7)	103.2 (82.0–124.3)	47.3 (25.0–69.6)	58.5 (37.2–79.8)	125.9 (72.1–179.8)	67.4 (11.1–123.8)	50.4 (42.7–58.0)	104.7 (84.9–124.4)	54.3 (32.4–76.2)	93.8 (72.7–114.8)	84.6 (47.0–122.1)	-9.2 (-51.1–32.6)	p=0.66	p=0.04
Housework (includes interior cleaning and laundry)	8.9 (5.5–12.2)	36.2 (23.4–49.1)	27.4 (14.2–40.5)	7.1 (0.7–13.5)	36.8 (8.6–65.1)	29.7 (1.2–58.2)	9.4 (5.8–13.1)	34.9 (22.6–47.2)	25.5 (12.5–38.4)	14.8 (6.3–23.3)	13.1 (3.9–22.2)	-1.7 (-14.3–10.9)	p=0.84	p=0.046
Food and drink preparation, presentation, and clean-up	16.5 (11.9–21.1)	47.7 (37.3–58.1)	31.2 (19.5–42.9)	9.7 (3.3–16.1)	38.3 (14.0–62.7)	28.6 (4.0–53.3)	16.8 (13.9–19.8)	39.4 (31.6–47.2)	22.6 (14.2–31.0)	20.6 (11.8–29.4)	28.8 (14.1–43.4)	8.2 (-8.4–24.8)	p=0.23	p=0.16
Interior and exterior maintenance and repair (includes exterior cleaning)	6.8 (2.5–11.1)	1.4 (0.0–2.8)	-5.4 (-9.9–-0.9)	8.7 (-7.1–24.6)	0	-8.7 (-24.6–7.1)	4.3 (1.8–6.7)	0.8 (0.0–1.5)	-3.5 (-6.0–-1.0)	10.7 (4.0–17.5)	3.0 (-0.3–6.3)	-7.7 (-15.2–-0.3)	p=0.47	p=0.91
Household management (includes financial management and household planning)	10.0 (6.7–13.3)	12.1 (5.9–18.2)	2.1 (-4.7–8.9)	18.0 (9.4–26.6)	25.5 (2.1–48.9)	7.5 (-17.1–32.0)	8.0 (4.3–11.7)	18.8 (12.3–25.2)	10.7 (3.2–18.3)	19.5 (10.8–28.1)	23.1 (-3.1–49.4)	3.7 (-23.8–31.2)	p=0.09	p=0.86
Other household activities (includes lawn care, pet care, and vehicle maintenance)	13.7 (9.5–17.9)	5.7 (1.8–9.7)	-8.0 (-13.8–-2.1)	14.9 (5.4–24.4)	25.3 (-5.6–56.2)	10.4 (-21.3–42.0)	11.8 (8.1–15.5)	10.8 (5.8–15.8)	-1.0 (-7.4–5.4)	28.2 (18.6–37.8)	16.5 (4.9–28.2)	-11.7 (-26.9–3.5)	p=0.12	p=0.21

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	Married physicians with children Minutes spent (95% CI)			Married physicians without children Minutes spent (95% CI)			Married lawyers with children Minutes spent (95% CI)			Married lawyers without children Minutes spent (95% CI)			p-value for difference between physicians and lawyers Minutes spent (95% CI)	
	Men (N=290)	Women (N=155)	Difference	Men (N=90)	Women (N=30)	Difference	Men (N=335)	Women (N=147)	Difference	Men (N=158)	Women (N=49)	Difference	With children	Without children
Child care	56.3 (45.8–66.8)	109.1 (81.5–136.8)	52.8 (24.8–80.8)	n/a	n/a	n/a	69.8 (57.7–81.8)	131.3 (108.1–154.6)	61.6 (35.2–87.9)	n/a	n/a	n/a	p=0.67	n/a
Total (Household activities + child care)	112.1 (97.0–127.2)	212.3 (180.8–243.8)	100.2 (67.0–133.3)	58.5 (37.2–79.8)	125.9 (72.1–179.8)	67.4 (11.1–123.8)	120.1 (106.7–133.6)	236.0 (202.1–269.9)	115.9 (78.9–152.9)	93.8 (72.7–114.8)	84.6 (47.0–122.1)	-9.2 (-51.1–32.6)	p=0.53	p=0.04

^a ATUS=American Time Use Survey

^b Authors' calculation using data from the ATUS from 2003 to 2016. Estimates use ATUS-provided weights to account for the complex sample design and are nationally representative. P-values refer to t-tests for difference in means. Comparisons were made using the complex survey modules in STATA to account for the complex sample design of the ATUS. The sample number of observations are reported in row 2.