

Do spousal caregivers have lower completion rates of preventative cancer screenings? Findings from the Health and Retirement Study

Jessica Osorio, MPH, MSIV¹, Taylor Mobley, MPH², Joseph Fong, MPH², Elizabeth Rose Mayeda, PhD²
¹David Geffen School of Medicine at UCLA, ²UCLA Fielding School of Public Health



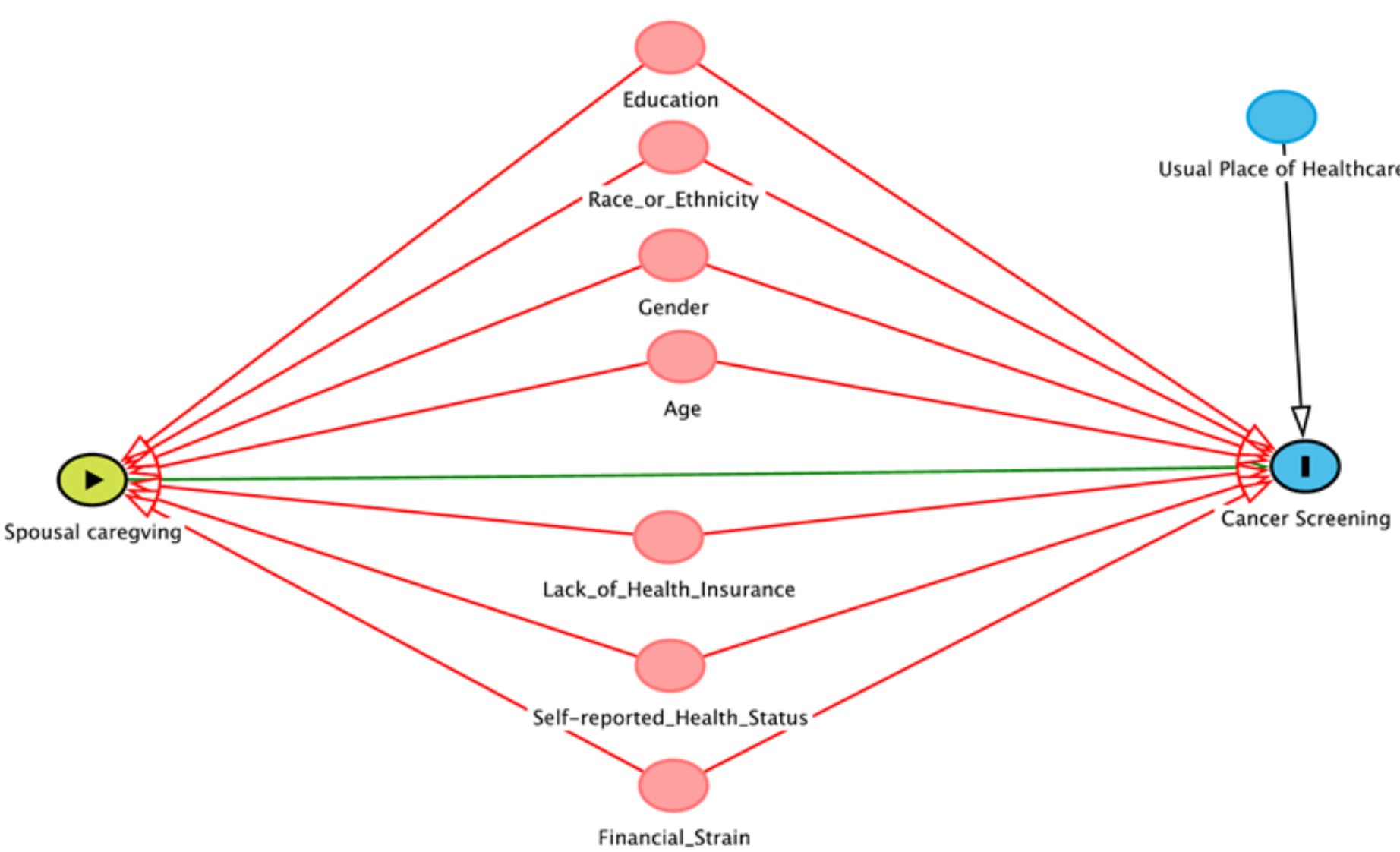
Introduction

- Spousal caregivers aid with ADLs, IADLs, coordinate medical care, and try to meet the physical, mental and cognitive needs of the care recipient.
- In 2011, ~17.7 million adults were caregivers to an older adult; 21.5% of the caregivers were a spouse to the care recipient, and 70% of caregivers reported providing care for 2 to 10 years.
- The assistance family caregivers provide collectively was estimated to be \$470 billion in 2017, much of which are costs not covered by the healthcare system or social safety nets.
- Understanding the implications of spousal caregiving on preventative healthcare utilization is important for maintaining caregivers' health.

Research Goal

Evaluate whether spousal caregivers have lower rates of mammograms, pap smears, and colorectal cancer screenings than non-caregivers.

Methods



- 2016 wave of the Health and Retirement Study (HRS), a nationally-representative cohort study of community dwelling adults 50 years and older.
- Study sample was restricted to married couples (n= 15,236).
- Exposure group are spousal caregivers that provide 14+ hours of care per week to a spouse (n= 513).
- Analysis was restricted to three subsamples: women ages 50 to 74 for mammograms, women 50 to 65 for pap smears, and men and women ages 50 to 75 for colorectal cancer screenings.

*gender as reported in HRS

Figures and Results

Table 1a. Caregiver and reference group characteristics for mammograms and pap smears subsamples, HRS, 2016

	Mammograms*			Pap smears**		
	Non-caregivers	Spousal caregivers	Total	Non-caregivers	Spousal caregivers	Total
	(n=4,582)	(n=159)	(n=4,741)	(n=3,358)	(n=109)	(n=3,467)
Age at 2016 interview (years), mean (SD)	60.7 (6.7)	61.7 (7.2)	60.7 (6.7)	57.4 (4.4)	57.7 (4.5)	57.4 (4.4)
Race/Ethnicity, n (%)						
Non-Latino White	2,696 (58.8)	73 (45.9)	2,769 (58.4)	1,786 (53.2)	39 (35.8)	1,825 (52.6)
Non-Latino Black	756 (16.5)	42 (26.4)	798 (16.8)	615 (18.3)	29 (26.6)	644 (18.6)
Latino	871 (19.0)	39 (24.5)	910 (19.2)	731 (21.8)	36 (33.0)	767 (22.1)
Other	259 (5.7)	5 (3.1)	264 (5.6)	226 (6.7)	5 (4.6)	231 (6.7)
Educational attainment, n (%)						
Less than high school	550 (12.0)	44 (27.7)	594 (12.5)	413 (12.3)	36 (33.0)	449 (13.0)
GED	224 (4.9)	13 (8.2)	237 (5.0)	175 (5.2)	11 (10.1)	186 (5.4)
High-school graduate	1,183 (25.8)	45 (28.3)	1,228 (25.9)	804 (23.9)	27 (24.8)	831 (24.0)
Some college	1,316 (28.7)	41 (25.8)	1,357 (28.6)	987 (29.4)	28 (25.7)	1,015 (29.3)
College and above	1,309 (28.6)	16 (10.1)	1,325 (27.9)	979 (29.2)	7 (6.4)	986 (28.4)
Uninsured, n (%)	395 (8.6)	20 (12.6)	415 (8.8)	380 (11.3)	19 (17.4)	399 (11.5)
Fair/poor self-rated health, n (%)	1,124 (24.5)	52 (32.7)	1,176 (24.8)	849 (25.3)	42 (38.5)	891 (25.7)
Mammogram in past two years, n (%)	3,586 (78.3)	109 (68.6)	3,695 (77.9)	2,169 (64.6)	58 (53.2)	2,227 (64.2)
Wealth, n (%)						
<10th percentile	429 (9.4)	37 (23.3)	466 (9.8)	371 (11.0)	29 (26.6)	400 (11.5)
10-24th percentile	685 (14.9)	35 (22.0)	720 (15.2)	580 (17.3)	26 (23.9)	606 (17.5)
25-49th percentile	1,155 (25.2)	51 (32.1)	1,206 (25.4)	889 (26.5)	36 (33.0)	925 (26.7)
50-74th percentile	1,183 (25.8)	25 (15.7)	1,208 (25.5)	813 (24.2)	15 (13.8)	828 (23.9)
75-89th percentile	673 (14.7)	8 (5.0)	681 (14.4)	433 (12.9)	3 (2.8)	436 (12.6)
>= 90th percentile	457 (10.0)	3 (1.9)	460 (9.7)	272 (8.1)	0 (0.0)	272 (7.8)

*Mammogram subsample inclusion criteria: female, ages 50 – 74 years
**Pap smear subsample inclusion criteria: female, ages 50 – 65 years

Table 2. Risk ratio and risk difference unadjusted and adjusted models for mammogram and pap smear subsamples

	Mammograms (n=4,741)		Pap Smears (n=3,467)	
	RR (95% CI)	RD (95% CI)	RR (95% CI)	RD (95% CI)
Model 1 ^a	0.88 (0.79, 0.97)	-0.10 (-0.17, -0.02)	0.82 (0.69, 0.98)	-0.11 (-0.21, -0.02)
Model 2 ^b	0.87 (0.79, 0.97)	-0.10 (-0.17, -0.03)	0.83 (0.69, 0.99)	-0.11 (-0.21, -0.02)
Model 3 ^c	0.91 (0.82, 1.00)	-0.07 (-0.14, 0.00)	0.86 (0.72, 1.02)	-0.09 (-0.18, 0.07)
Model 4 ^d	0.94 (0.85, 1.04)	-0.05 (-0.12, 0.02)	0.87 (0.73, 1.04)	-0.07 (-0.17, 0.02)

^aModel 1: Unadjusted model
^bModel 2: Adjusted for age
^cModel 3: Adjusted for age, race, education, self-reported health status, and health insurance status
^dModel 4: Adjusted for age, race, education, self-reported health status, health insurance status, and wealth categories

Table 3. Risk ratio and risk difference unadjusted and adjusted models for colorectal cancer screening subsample

	Combined Genders* (n=9,599)		Males (n=4,730)		Females (n=4,869)	
	RR (95% CI)	RD (95% CI)	RR (95% CI)	RD (95% CI)	RR (95% CI)	RD (95% CI)
Model 1 ^a	0.89 (0.79, 1.01)	-0.05 (-0.11, 0.00)	0.90 (0.74, 1.08)	-0.05 (-0.14, 0.03)	0.89 (0.75, 1.06)	-0.05 (-0.13, 0.02)
Model 2 ^b	0.88 (0.77, 1.00)	-0.06 (-0.12, -0.01)	0.88 (0.73, 1.06)	-0.06 (-0.15, 0.02)	0.88 (0.74, 1.04)	-0.06 (-0.14, 0.01)
Model 3 ^c	0.93 (0.82, 1.05)	-0.04 (-0.09, 0.02)	0.93 (0.78, 1.12)	-0.04 (-0.12, 0.05)	0.92 (0.78, 1.09)	-0.04 (-0.11, 0.04)
Model 4 ^d	0.96 (0.85, 1.08)	-0.02 (-0.08, 0.03)	0.97 (0.81, 1.16)	-0.02 (-0.10, 0.06)	0.95 (0.80, 1.12)	-0.03 (-0.11, 0.05)

*Combined gender colorectal cancer screening models 2-4 additionally adjust for gender
^aModel 1: Unadjusted model
^bModel 2: Adjusted for age
^cModel 3: Adjusted for age, race, education, self-reported health status, and health insurance status
^dModel 4: Adjusted for age, race, education, self-reported health status, health insurance status, and wealth categories

In the fully adjusted model, an excess of five spousal caregivers per 100 did not utilize mammogram (RD: -0.05, 95% CI: -0.12, 0.02) when compared to non-caregivers.

In the fully adjusted model, an excess of 7 caregivers per 100 did not complete pap smears over the prior two years (RD: -0.07, 95% CI: -0.17, 0.02) when compared to non-caregivers.

In the fully adjusted model, an excess of 2 caregivers per 100 did not complete a colorectal cancer screening over the prior four years (RD -0.02, 95% CI: -0.08, 0.03) when compared to non-caregivers.

Conclusion and Discussion

Conclusion

- The range and skew of the confidence intervals in the analysis shows a pattern that spousal caregivers have lower completion rates of mammograms, pap smears, and colorectal cancer screenings. While the RR and RD cross the null, a larger sample could help with the precision of the effect estimate which could strengthen the findings.
- Overall, we find that the consistency in lower RR and RD across all three cancer screenings does show that spousal caregiving is associated with lower rates of mammogram, pap smear, and colorectal cancer screening completion.

Discussion

- The lower cancer screening completion by spousal caregivers represents a missed opportunity for preventative healthcare in a vulnerable group of individuals, who fulfill an important role in an aging population.

Limitations

- Small group of spousal caregivers given 14+ hour/week criteria
- Hours of care received are self reported. That could lead to non-differential misclassification of exposure.
- HRS questions for pap smear and colorectal cancer screening time intervals do not align with the USPSTF recommendations

Acknowledgments

Benjamin Capistrant, Sc.D and Joshua Demb, PhD read my preliminary manuscript, offered guidance to the research focus, and encouraged this work given the importance of preventative medicine for older adults, and in particular for spousal caregivers who face many social challenges in caring for their loved ones.

References

- The National Academies of Sciences, Engineering, and Medicine, ed. *Families Caring for an Aging America*. The National Academies Press; 2016. <https://doi.org/10.17226/23606>
- Health and Retirement Study, 2016 wave. Accessed 2019 and 2020. <https://hrsdata.isr.umich.edu/data-products/2016-rand-hrs-fat-file>
- Kim C, Kabeto MU, Wallace RB, Langa KM. Quality of Preventive Clinical Services Among Caregivers in the Health and Retirement Study. *J Gen Intern Med*. 2004;19(8):875-878. doi:10.1111/j.1525-1497.2004.30411.x