

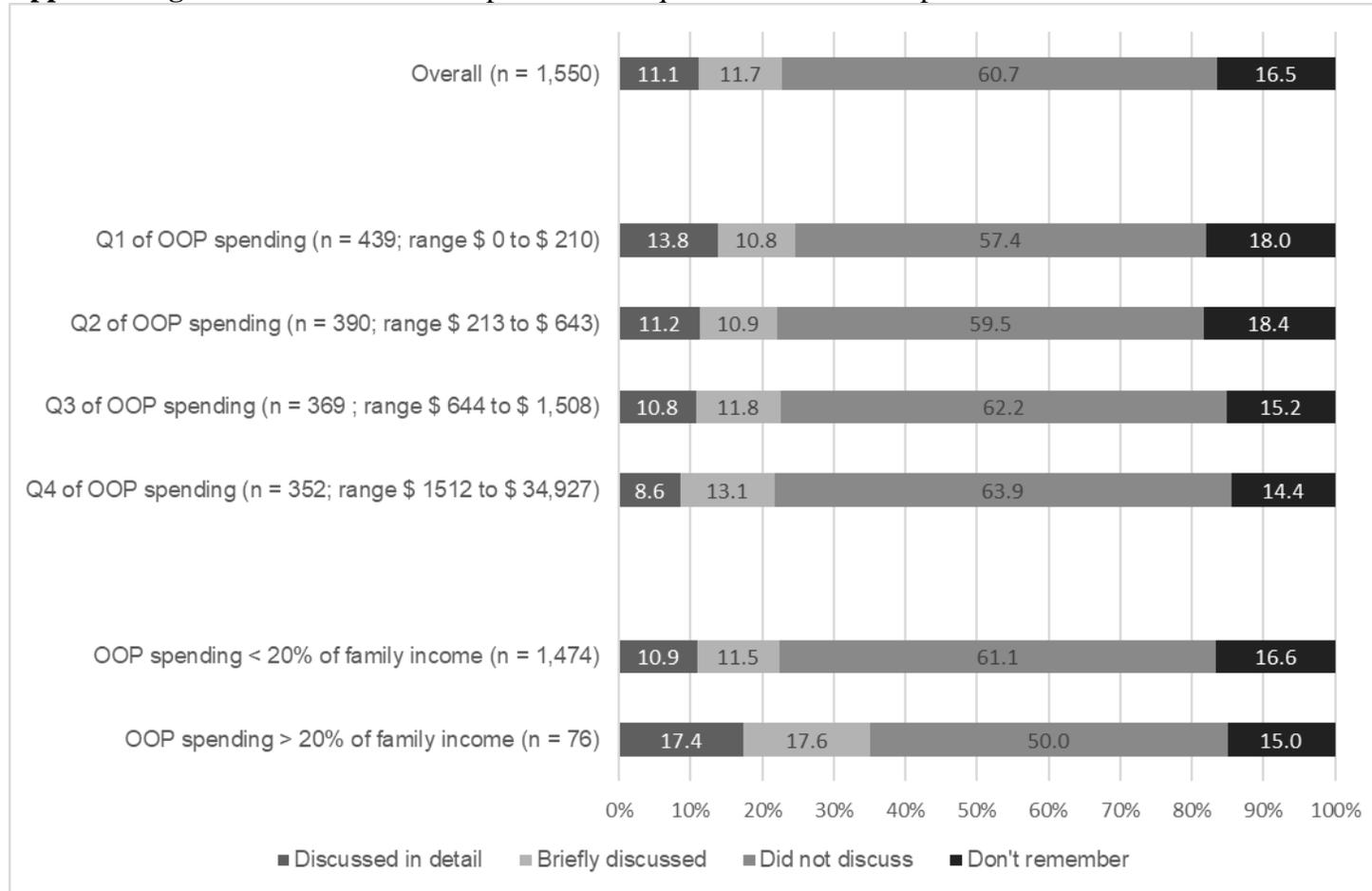
Appendix
Patient-Provider Discussions About Out-of-Pocket Costs of Cancer Care in the U.S.
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Appendix Table 1. Distribution of Past-year Out-of-Pocket Spending in the Entire Sample (n=1,550)

Quartile	n	Minimum (\$)	Maximum (\$)	Weighted mean	SE
1	439	0	210	75.95	4.00
2	390	213	643	409.98	8.82
3	369	644	1,508	983.64	17.37
4	352	1,512	34,927	3,911.35	239.00

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Appendix Figure 1. Distribution of responses to the question about out-of-pocket cost discussions in the entire sample (n=1,550).



Data Source: 2016/2017 Medical Expenditures Panel Survey Experiences with Cancer Survey.

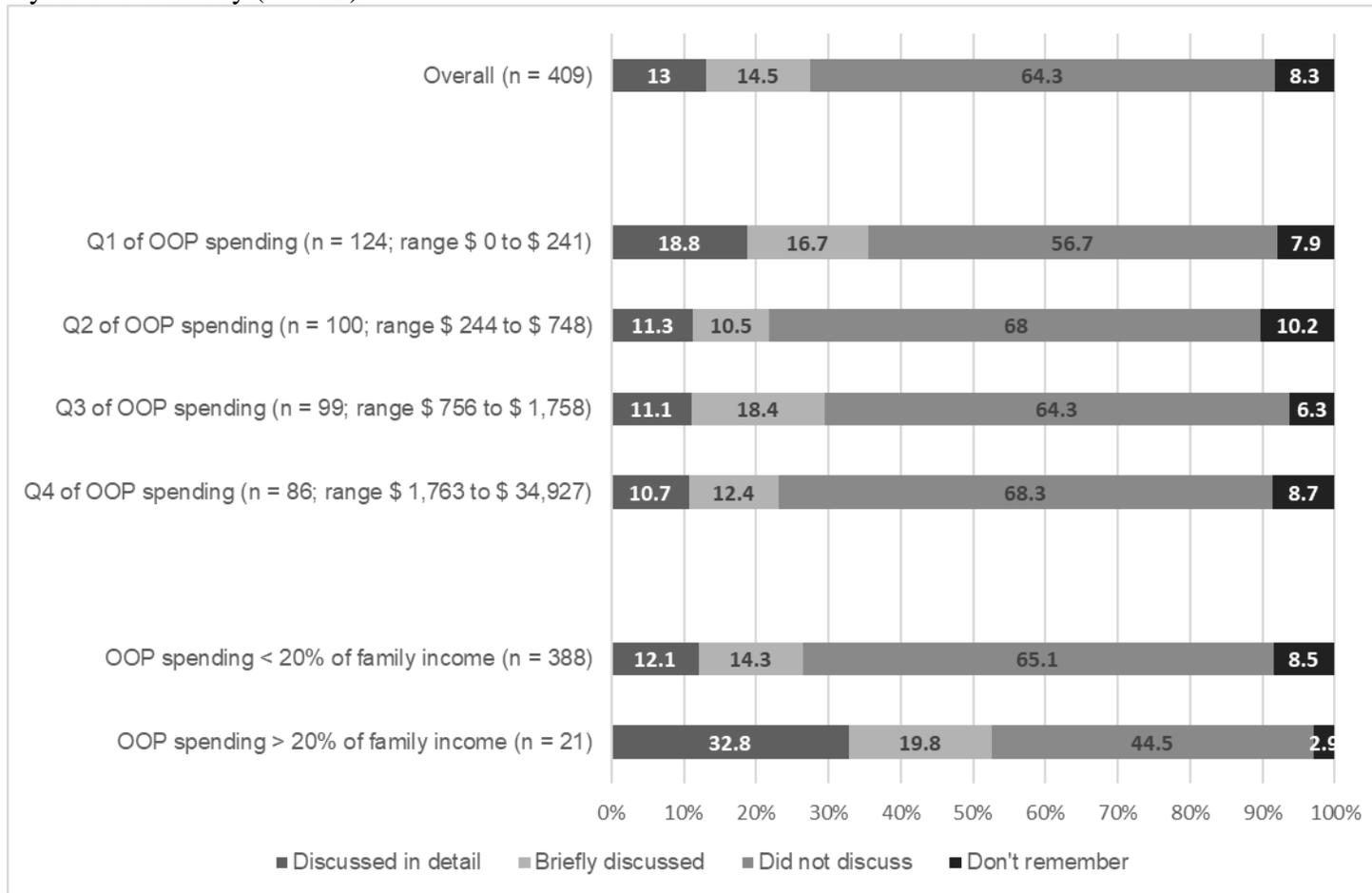
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Appendix Table 2. Distribution of Past-year Out-of-Pocket Spending Among Respondents Treated Within 1 Year of the Survey (n=409)

Quartile	n	Minimum (\$)	Maximum (\$)	Weighted mean	SE
1	124	0	241	92.18	9.60
2	100	244	748	521.35	21.52
3	99	756	1,758	1,199.76	36.02
4	86	1,763	34,927	5,457.11	755.43

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Appendix Figure 2. Distribution of responses to the question about out-of-pocket cost discussions among respondents treated within 1 year of the survey (n= 409).



Data Source: 2016/2017 Medical Expenditures Panel Survey Experiences with Cancer Survey.

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Appendix Table 3. Factors Associated With Absence of Cost Discussions, 2016/2017 Medical Expenditure Panel Survey^a

Variable	Entire sample AOR (95% CI)	Treatment ≤ 5 years of the survey entire sample AOR (95% CI)
Age, years		
18–44	ref	ref
45–54	1.12 (0.63, 1.99)	1.03 (0.47, 2.30)
55–64	1.32 (0.82, 2.12)	0.95 (0.47, 1.93)
65–74	1.40 (0.89, 2.20)	1.40 (0.72, 2.75)
≥75	1.63 (1.02, 2.60)*	1.52 (0.76, 3.07)
Sex		
Female	ref	ref
Male	0.93 (0.74, 1.19)	0.71 (0.49, 1.05)
Race/ethnicity		
Non-Hispanic white	ref	ref
Non-Hispanic black/others	0.73 (0.53, 1.01)	0.62 (0.40, 0.98)*
Marital status		
Currently married	ref	ref
Others	0.95 (0.73, 1.24)	1.01 (0.67, 1.53)
Education		
Less than high school/Missing	ref	ref
High school	1.33 (0.97, 1.83)	1.67 (1.02, 2.73)*
College/Advanced degree	1.58 (1.11, 2.26)**	1.80 (1.08, 2.98)*
Insurance status at the time of diagnosis		
Any private	ref	ref
Public only	1.16 (0.86, 1.57)	1.12 (0.74, 1.71)
Uninsured	0.54 (0.33, 0.89)*	0.76 (0.34, 1.70)
Not ascertained	1.05 (0.69, 1.61)	1.44 (0.72, 2.89)
Time since last cancer treatment (“No Discussion”/“Don't remember” vs “Any Discussion”) ^b		
<1 year/Currently receiving treatment	ref	ref
1–3 years	0.95 (0.58, 1.56)	0.94 (0.57, 1.52)

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4-5 years	1.09 (0.65, 1.85)	1.13 (0.66, 1.93)
>5 years/Never treated	1.43 (1.08, 1.91)*	
Not ascertained	1.35 (0.72, 2.54)	
Time since last cancer treatment (“No Discussion” vs “Don't remember”/“Any Discussion”) ^b		
<1 year/Currently receiving treatment	ref	ref
1-3 years	0.68 (0.42, 1.11)	0.67 (0.41, 1.08)
4-5 years	0.91 (0.56, 1.48)	0.91 (0.55, 1.50)
>5 years/Never treated	0.80 (0.62, 1.05)	
Not ascertained	0.68 (0.40, 1.15)	
Ever experienced material/psychological/behavioral financial hardship related to cancer or its treatment (“No Discussion”/“Don't remember” vs “Any Discussion”) ^b		
No	ref	ref
Yes	0.47 (0.35, 0.64)**	0.55 (0.34, 0.87)*
Ever experienced material/psychological/behavioral financial hardship related to cancer or its treatment (“No Discussion”/“Don't remember” vs “Any Discussion”) ^b		
No	ref	ref
Yes	0.73 (0.57, 0.94)*	0.73 (0.48, 1.11)

Note: Boldface indicates statistical significance (* $p < 0.05$; ** $p < 0.01$).

^aResults from generalized ordered logistic regressions with “no discussion” as the highest category, “don't remember” as the middle category, and “any discussion” as the lowest category.

^bORs are partitioned for these variables because of violations of the parallel lines assumption.

Note on the generalized ordered logistic model with partial proportional odds

A generalized ordered logistic approach with partial proportional odds was used to examine the associations between respondent characteristics and three ordinal levels of cost discussions: “any discussion” (derived by combining the “brief discussion” and “detailed discussion” response categories), “don’t remember”, and “no discussion”, in ascending order. The “don’t remember” category was put in the middle, given the inevitability that respondents who did not remember having cost discussions actually belonged to one of the two extreme categories.

An important consideration with ordered logistic regression is the parallel lines (proportional odds) assumption. According to the assumption, if a set of two separate binary logistic regressions were fitted to the data by combining the middle category first with the highest and then the lowest category, the slope coefficient for an explanatory variable would be same across the two regressions. The assumption was tested by running a generalized ordered logistic model using STATA’s `gologit` routine with the `autofit` option.¹ The routine provided two odds ratios for each variable which violated the assumption (one each for “no discussion” versus “don’t remember” / “any discussion” and “no discussion” / “don’t remember” versus “any discussion”). Although three variables—sex, time since last treatment, and experience of financial hardship—were in violation of the assumption, the two odds ratios for sex were in the same direction and not statistically significant. Thus, in the final model, we imposed the parallel lines assumption on all variables except time since last treatment and experience of financial hardship. A similar approach has been used previously.² This approach is less restrictive than the conventional ordered logistic regression which would impose proportionality of odds for all independent variables and also is more parsimonious than a model with a non-ordered dependent variable such as multinomial logit.

REFERENCES

1. Williams R. Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *Stata J.* 2006;6(1):58–82.
<https://doi.org/10.1177/1536867X0600600104>.
2. Tai-Seale M, Hatfield LA, Wilson CJ, et al. Periodic health examinations and missed opportunities among patients likely needing mental health care. *Am J Manag Care.* 2016;22(10):e350–e357.