The Cost of Complexity: Financial Toxicity in Rheumatic Disease, Cancer, and Their Intersection

Authors: *Manush Sondhi,[1] Bhavik Bansal,[2] Hemant Khandelia,[1] Jiha Lee,[3] Sebastian Sattui,[4] Siddharth Singh,[5] Namrata Singh[1]

1. University of Washington, Seattle, USA
2. UT Southwestern Medical Center, Dallas, Texas, USA
3. University of Michigan, Ann Arbor, USA
4. Division of Rheumatology and Clinical Immunology, University of Pittsburgh, Pennsylvania, USA
5. Mayo Clinic Arizona, Phoenix, USA

*Correspondence to manushsondhi@gmail.com

Disclosure: The authors have declared no conflicts of interest.

Keywords: Cancer, financial distress, financial toxicity (FT).

Citation: AMJ Rheumatol. 2025;2[1]:35-37. https://doi.org/10.33590/rheumatolamj/PDTI1597

BACKGROUND AND AIMS

Financial toxicity (FT) is the financial burden of accessing healthcare. It is well known in cancer and increasingly seen in rheumatic disease (RD). The authors compared FT among adults with neither condition, RD only, cancer only, and both.[1]

MATERIALS AND METHODS

The authors used the National Health Interview Survey (NHIS), a nationally representative sample of US adults from 2019–2023. Adults were categorized by self-reported RD, including arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia, and/or cancer. FT was defined as the presence of one or more of the following: financial distress, difficulty paying bills, delayed or forgone care, cost-related medication non-adherence, and food insecurity.[2] Weighted logistic regressions were used to examine associations between disease groups and FT components, adjusting for demographics, comorbidities, and insurance status. To account for baseline differences and insurance coverage, analyses were stratified by age (<65 versus ≥65 years). Analyses were conducted in RStudio v4.4.1 (Posit, Boston, Massachusetts, USA); significance was set at $p<0.05$.

RESULTS

A total of 149,905 adults were included, of whom 10,094 (weighted prevalence: 6.3% [95% CI: 6.1–6.5%]) had cancer only, 30,446 (18.5% [95% CI: 18.2–18.8%]) had rheumatic disease (RD) only, and 8,713 (4.7% [95% CI: 4.6–4.9%]) had both RD and cancer. These correspond to approximately 80.5, 235.6, and 59.9 million US adults, respectively. Adults with both RD and cancer were more likely to be aged ≥65 years (70.5%) and had the highest rates of multimorbidity (62.1% with ≥2 comorbidities). Most adults across groups were female and insured, with higher educational attainment in the cancer-only and neither condition (Table 1). In adults under 65 years, FT was highest in those with RD alone (63.9%) or RD plus cancer (64.3%), compared to 54% in those without either condition. Medication non-adherence was higher in RD groups (RD only: 16.3%; RD with cancer: 19.2%). In adults over 65 years, FT was most prevalent in those with RD only (41.4%), with financial distress being highest in this group (35.1%). Among adults <65 years, compared to those with neither RD nor cancer, persons with RD alone or in combination with cancer were consistently associated with increased FT across all domains (Figure 1). Among adults ≥65 years, RD remained associated with higher odds of difficulty paying bills, cost-related medication non-adherence, and food insecurity, while cancer alone

Table 1: Baseline characteristics of adults with cancer and/or rheumatic disease from the National Health Interview Survey, 2019–2023.

	Neither Rheumatic Disease nor Cancer	Cancer Only	Rheumatic Disease Only	Rheumatic Disease and Cancer
Sample	N = 100,652	N = 10,094	N = 30,446	N = 8,713
Weighted sample	928,897,493	68,736,147	216,267,964	53,352,2631
Age category yrs				
18–**39** years	40,418.0 (48.3)	631.0 (8.8)	2,010.0 (9.1)	92.0 (1.6)
40–**64** years	41,890.0 (39.5)	3,596.0 (42.2)	12,452.0 (47.1)	1,952.0 (27.9)
65+ years	18,344.0 (12.2)	5,867.0 (49.0)	15,984.0 (43.8)	6,669.0 (70.5)
Sex				
Female	51,691.0 (49.2)	5,480.0 (52.9)	18,783.0 (59.1)	5,394.0 (59.4)
Male	48,946.0 (50.8)	4,614.0 (47.1)	11,662.0 (40.8)	3,319.0 (40.6)
Race				
Asian	7,312.0 (7.1)	185.0 (2.3)	855.0 (3.5)	91.0 (1.5)
Black	11,278.0 (12.3)	591.0 (6.3)	3,749.0 (12.4)	520.0 (6.4)
Hispanic	16,806.0 (19.8)	598.0 (7.7)	2,634.0 (11.0)	362.0 (5.3)
Others	2,655.0 (2.8)	145.0 (1.5)	764.0 (2.6)	182.0 (2.1)
White	62,601.0 (58.0)	8,575.0 (82.1)	22,444.0 (70.6)	7,558.0 (84.6)
Education Category				
High School or less	32,044.0 (37.5)	2,854.0 (32.3)	12,260.0 (44.2)	3,017.0 (38.8)
Some college or higher	68,608.0 (62.5)	7,240.0 (67.7)	18,186.0 (55.8)	5,696.0 (61.2)
Insured				
Insured	90,367.0 (87.6)	9,829.0 (96.2)	29,381.0 (95.5)	8,607.0 (98.5)
Uninsured	10,285.0 (12.4)	265.0 (3.8)	1,065.0 (4.5)	106.0 (1.5)
Region				
North Central/Midwest	21,445.0 (20.1)	2,328.0 (22.4)	7,222.0 (22.7)	2,054.0 (22.4)
Northeast	16,627.0 (17.6)	1,705.0 (17.3)	5,134.0 (17.6)	1,492.0 (17.8)
South	36,144.0 (37.8)	3,631.0 (37.5)	11,366.0 (38.8)	3,196.0 (39.0)
West	26,436.0 (24.5)	2,430.0 (22.7)	6,724.0 (20.9)	1,971.0 (20.9)
Number of Comorbidities				
0	53,752.0 (56.8)	2,884.0 (30.5)	5,910.0 (21.1)	1,146.0 (13.4)
1	27,386.0 (26.6)	2,980.0 (29.6)	8,397.0 (27.7)	2,126.0 (24.6)
≥2	19,514.0 (16.6)	4,230.0 (39.9)	16,139.0 (51.2)	5,441.0 (62.1)

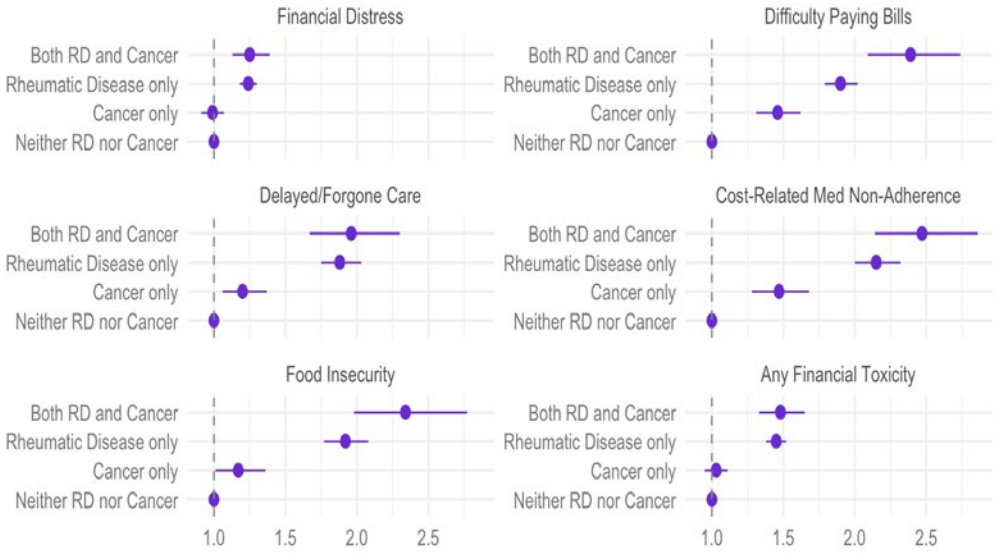
yrs: years.

was not associated with increased financial toxicity and appeared protective in some domains compared to those with neither condition. The combined burden of RD and cancer conferred a similar level of risk as RD alone (Figure 2).

CONCLUSION

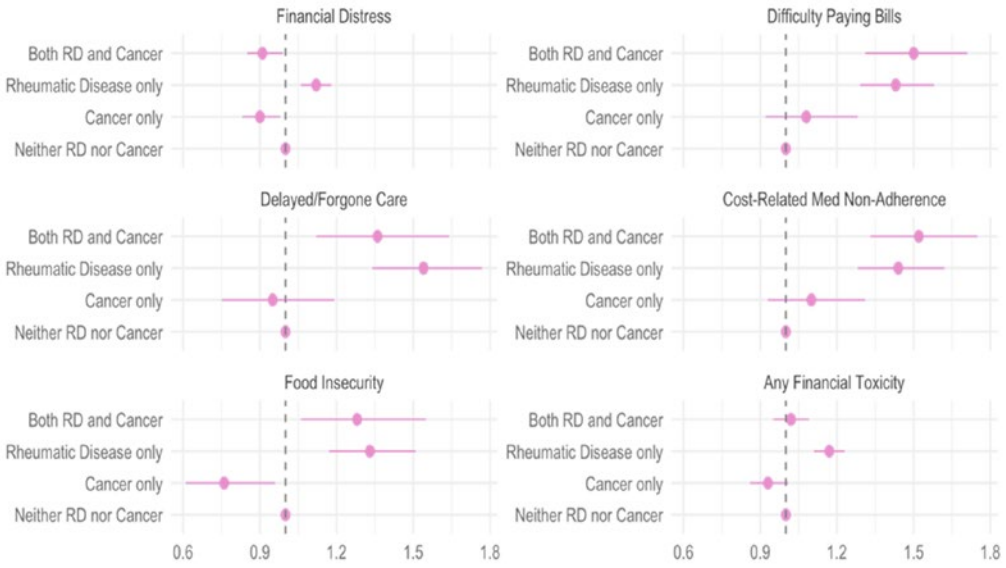
Among younger adults, RD had a stronger association with FT than cancer, with the highest burden seen in those with both. Similar trends were observed among older adults, though with more modest effect sizes. While cancer may lead to short-term high costs, RD imposes a chronic financial burden from ongoing treatment and care. Even among Medicare-insured older adults, FT persists. These findings underscore the need for RD-specific FT assessment tools and greater clinical attention to financial burden, particularly as longer life expectancy amplifies the long-term economic impact of chronic RDs.

Figure 1: Adjusted odds ratios for financial toxicity outcomes among younger adults (<65 years) by disease group.



RD: rheumatic disease.

Figure 2: Adjusted odds ratio for financial toxicity outcomes among older adults (≥65 years).



RD: rheumatic disease.

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