



Determining the Financial Well-Being and Influencing Factors in Cancer Patients

By: Mike Gutter, University of Florida
Giselle Navarro, University of Florida
Travis Mountain, Virginia Tech University
Xiang Cao, Virginia Tech University
Ramzi Salloum, University of Florida

Cancer Impacts Patient's Economic Stability

- Cancer is expensive to treat and sends a financial shock to a patient and support system
- Increased stress and reduced quality of life as patients make up for the loss of income due to cost of care:
 - **Direct costs:** copayments, deductibles, diagnostic tests, medications, transportation to/from hospital
 - **Indirect costs:** job loss, decreased business revenue, forgone savings, utilization of palliative services

Can Something be done to better understand and help patients deal with the financial burden of Cancer?

Cancer Patients are at increased risk for reduced Financial Well-Being

Research Shows:

- 36% deplete their savings
- 24% borrow against their retirement
- 2.65x more likely to file bankruptcy
- 80% increased risk of death



(Ramsey et. al, 2013)

Financial Well-Being Defined

*Sense of security and feeling as though you
have enough money to meet your needs*

- being in control of your financial situation
- having the financial freedom to make choices that allow you to enjoy life (today and in the future)

(Consumerfinance.gov, 2019)

Financial Toxicity Defined

When the financial burden of the disease and treatment interfere with the course of treatment

- Having a lot of medical care costs not covered by insurance
- Limited income to consider all available treatment options
- Reduce lifestyle in order to support cancer care
- Decreased quality of life (in-adherence to medications, reduced groceries and household items)

Focus is more on the current time period

(Cancer.gov, 2019)



(New York Times, 2019)

Item	Financial Well-Being (FWB) Abbreviated	Comprehensive Score for Financial Toxicity (CoST)
1	Because of my money situation I feel like I will never have the things	I feel financially stressed
2	I am just getting by financially	I am satisfied with my current financial situation
3	I am concerned that the money I have or will save won't last	I worry about the financial problems I will have in the future as result of my illness or treatment
4	I have money left over at the end of the month	I am frustrated that I cannot work or contribute as much as I usually do
5	My finances control my life	My cancer or treatment has reduced my satisfaction with my present financial situation
6		I feel in control of my financial situation
7		I am able to meet my monthly expenses
8		I know that I have enough money in savings, retirement, or assets to cover the cost of my treatment
9		I am concerned about keeping my job and income including working at home
10		I feel I have no choice about the amount of money I spend on care
11		My out-of-pocket medical expenses are more than I thought they would be

Our Study Explores....

*The determinants of Financial Well-Being and Financial Toxicity
including demographics and cancer-type characteristics*

1. What are the determinants of FWB in our 22-county Catchment area sample of cancer patients and survivors?
2. What are the determinants of CoST in Cancer Patients in sample population?
3. Do the determinants of FWB and CoST differ?

Methods

- Final Sample: 263 cancer patients and survivors of UF's Health Cancer Center residing in 22-county area
- Comparing 2 measures of Financial Well-Being/Dependent Variables in paired Ordinary Least Squares Regression (OLS)
 - A. *CFPB Financial Scale (FWB)*
 - B. *Comprehensive Score for Financial Toxicity (CoST)*
- The corresponding coefficients are compared using an F-test to determine Statistical difference

Description of Population Sample

Variable	Mean or %
Age, in years (RANGE)	64.05
White (vs. Non-white)	84.00%
Hispanic	3.67%
Income:	
Under \$15,000	17.05%
\$15,000 - \$34,999	20.83%
\$35,000 - \$74,999	31.44%
\$75,000 –\$99,999	11.36%
\$100,000 and over	19.32%
Education:	
College degree or more	41.08%
Public insurance	54.00%
Private insurance	35.33%

Type of cancer:	
Breast	45.00%
Prostate	15.33%
Colorectal	14.33%
Gynecological	10.00%
Lung	15.00%
Leukemia	8.70%
Presence of a caregiver	69.33%
Unpaid time off from work because of disease	21.33%
Time since last treatment:	
Currently Treated	40.07%
Less Than 1 year	10.77%
1 to 3 years	17.17%
3 to 5 years	15.49%
5 more years	16.50%

Key Finding: What are the determinants of FWB in our 22-county Catchment area sample of cancer patients and survivors?

- Having a college education +
- Income nonlinear effect (<\$15K reference group)
 - \$ 15-35K having lower FWB than < 15K income
 - \$100K or higher was positively related
- Breast, Colorectal, Lung have higher FWB
- Having unpaid time off from work during treatment (-) FWB)

Key Finding: What are the determinants of CoST in Cancer Patients in sample population?

- Whites (compared to non-white) had higher CoST which means lower Financial toxicity
- Age (-) related to CoST, which means greater financial toxicity
- Colorectal, gynecological, prostate, lung, and leukemia (-) related to CoST
 - Greater levels of financial toxicity
- Time since last treatment (compared to those still in treatment)
 - 3-5 years and 5 or more years +
 - Financial toxicity was less for those with longer periods since last treatment

Key Finding: Do the determinants of FWB and CoST differ?

- Race and age were significantly related to financial toxicity but not FWB.
 - This may be due to limited size of non-whites in the sample and skewed toward higher ages.
 - However, any racial difference in this outcome should be further examined. That these relate to financial toxicity may have to do with the role race and age may play in managing and paying for chronic disease.
 - Those with a college degree or more have higher FWB, higher education is not significantly related to CoST. Education may not necessarily be related to the more disease specific nature of the measure.

	FWB	CoST
Age	X	(-)
Whites vs. nonwhites	X	(+)
College Degree or More	(+)	X

Key Finding: Do the determinants of FWB and CoST differ?

- The lack of significance of income as a determinant of CoST, but of FWB is very interesting and may be related to the disease-specific nature of the measure.
- Perhaps cancer expenses (whether treatment related or because of disease related impacts such as lost income) are relative in nature in terms of their impact. This would make higher income patients also susceptible to financial toxicity along with lower income patients. This warrants additional study.

Key Finding: Do the determinants of FWB and CoST differ?

- In addition, given the role that time since last treatment had on CoST only, determining well-being in cancer patients should consider the potential information each measure has to offer. This result is surprising as the time since last treatment would have still affected one's sense of security and freedom of choice. However, this was not the case.
- Breast, colorectal, and lung cancer were related to FWB, but all cancer types except breast cancer were significantly related to CoST. All cancer types will not necessarily have equal financial implications for households; this warrants future study. Time since last treatment, or the recency of the financial shock, was only related to CoST

Conclusions and Implications



- Differences in determinants of the two measures.
 - FWB is more balanced in current versus future in terms of security and freedom of choice, while CoST is more focused on current interaction of finances and this disease
 - Further exploration needs to include larger sample and time series data to provide a more rigorous understanding.
 - In-depth study planned for Non-Hodgkins Lymphoma patients
- It is important to consider the role of each measure in future studies
 - The disease relevance and its link to Health Outcomes is meaningful
 - Beyond health consequence, FWB may still provide a more overall current and longer term measure of ones perception of security and freedom of choice.

References

1. Ramsey S, Blough D, Kirchhoff A, et al. (2013). *Washington State cancer patients found to be at greater risk for bankruptcy than people without a cancer diagnosis*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/23676531>
2. Cancer.gov (2019). *NCI Dictionary of Cancer Terms*. Retrieved from <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/financial-hardship>
3. Consumerfinance.gov (2019). *Why financial-being?* Retrieved from <https://www.consumerfinance.gov/consumer-tools/financial-well-being/about/>