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# Shared Decision Making (SDM), Healthcare Expenditures, and ER Visits amongst Cancer Patients: Evidence from the MEPS Data: 2005-2022

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## INTRODUCTION

Shared decision-making (SDM) is a collaborative process where patients and healthcare professionals make decisions together, considering patients' concerns and circumstances [1]. SDM has been linked to improved medication adherence, patient satisfaction, well-being, and overall quality of life. Patients involved in SDM also report feeling more in control of their treatment choices. Moreover, SDM can reduce healthcare costs, as patients often opt for less aggressive treatments when actively involved in decision-making [2].

In the United States, financial distress due to healthcare costs is common, with over a quarter of patients struggling to pay medical bills or cover out-of-pocket expenses [1]. This financial burden, or "financial toxicity," not only causes economic strain but is also linked to poorer health outcomes. Many patients' experiencing financial toxicity may skip medications or delay care, worsening their health [1].

The association of financial hardship is particularly severe for cancer patients, as cancer treatments are expensive. The lifetime cost of cancer care ranges from $150,000 to $200,000, with cancer drugs accounting for high annual costs. Even insured cancer patients face substantial out-of-pocket costs, up to $24,000 for those with employer-sponsored insurance, and $12,000 for Medicare beneficiaries [1]. A national survey found that 33.7% of cancer survivors experienced financial hardship, with many incurring significant debts or declaring medical bankruptcy.

Given this, patient-provider discussions about treatment costs have become critical in cancer care, helping to mitigate the effects of financial toxicity. Evidence suggests that such discussions can improve patient outcomes by addressing financial concerns and presenting all available treatment options [3]. A preliminary analysis of the association of shared decision making amongst cancer participants on total medical expenditure by payer type and number of emergency visits along with regression analysis was carried out in this research study.

## STUDY SAMPLE AND KEY VARIABLES

The study sample includes adult MEPS respondents with a self-reported cancer diagnosis (identified using ICD-10 codes mapped to MEPS medical condition files). We restrict the sample to respondents with complete data on expenditures and CAHPS items.

**Dependent Variables:** Total annual healthcare expenditure (sum of all direct payments by private insurance, Medicare, Medicaid, out-of-pocket, and other sources) and the number of emergency room visits

**Independent Variable:** DECIDE42 -Does the USC provider ask the person to help make decisions between a choice of treatments? There were four categories of SDM: Always, Usually, Sometimes, and Never. The categories SDM and Non-SDM were obtained by, combining 'Always' and 'Sometimes' for SDM category, and 'Sometimes' and 'Never' for Non-SDM category.

**Covariates:** Age, sex, race/ethnicity, education, insurance status, income level.

## METHODS

The analysis was conducted using the Medical Expenditure Panel Survey (MEPS) data from 2005 to 2022. The datasets of individual years were appended for the analysis. The cancer population was defined in each year. Using the unique ID, it was ensured that no observations were repeated or duplicated. Differences in total expenditure were examined by comparing summary statistics across groups defined by the decision-making variable (yes/no). Measures such as the mean, standard deviation, minimum, and maximum were calculated separately for each group to assess variation in spending patterns by decision-making status. Similarly, differences in mean emergency visits were calculated based on SDM differences. The mean difference in the total medical expenditure by Payer type was also calculated.

**Figure 1-Percentage of Cancer Participants with Shared Decision Making and without Shared Decision Making**

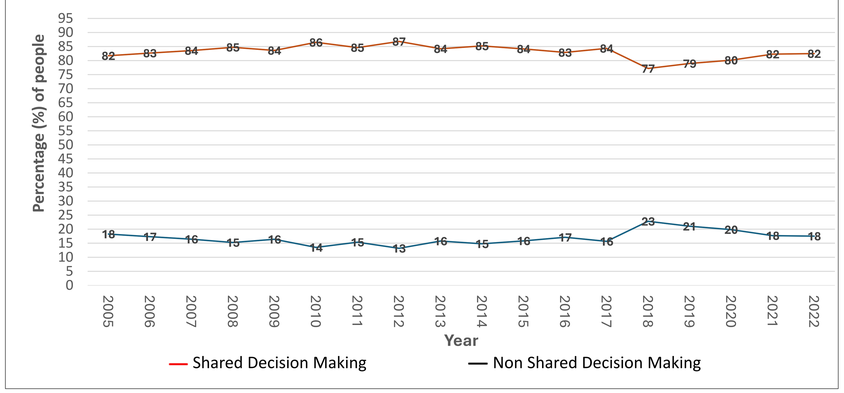


**Figure 2- Average Total Expenditure of Cancer Participants with Shared Decision Making and without Shared Decision Making**

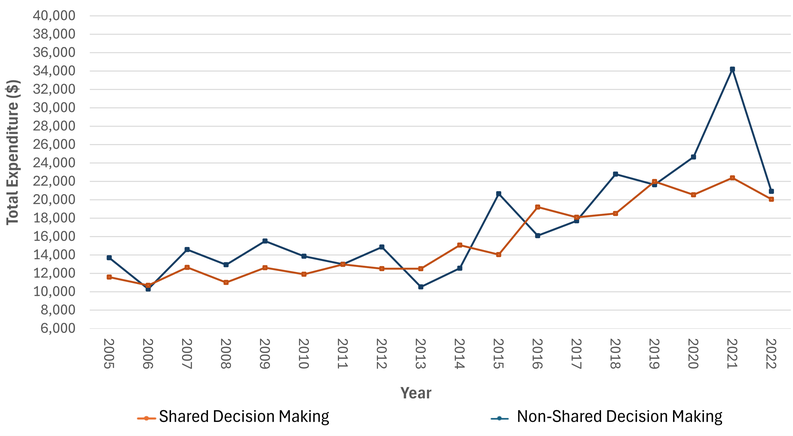


**Figure 3-Average number of Emergency (ER) Visits of Cancer Participants with Shared Decision Making and without Shared Decision Making**

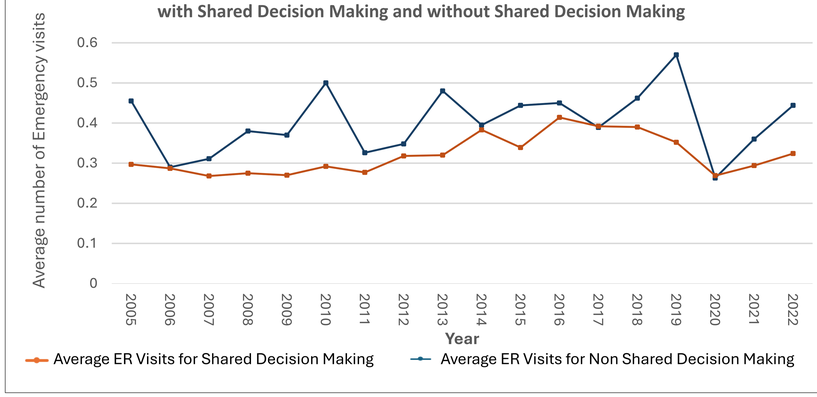


**Table 1- Multivariate Regression Model for Total Expenditures**

| Key Variable | Coefficient (SE) | p-value | Interpretation |
|---|---|---|---|
| **Shared Decision Making** | **−1,926 (603)** | **0.001** | **Participants receiving SDM spent $1,926 less on average than those without, controlling for covariates.** |
| **Other Covariates** | | | |
| **Variable** | **Coefficient (SE)** | **p-value** | **Interpretation** |
| Age (per year) | 113 (16) | <0.001 | Each additional year of age → $113 higher expenditure |
| Sex (Male vs Female) | −1,786 (472) | <0.001 | Males spent $1,786 less than females |
| Income | −0.011 (0.006) | 0.067 | Not significant |
| Race (ref = White) | | | |
| – Black | 2,251 (694) | 0.001 | Black participants spent $2,251 more than White |
| – Other | 2,755 (1,145) | 0.016 | Other races spent $2,755 more than White |
| Marital Status (Married vs Other) | 2,012 (485) | <0.001 | Married participants spent $2,012 more that Unmarried participants. |
| College Education (Yes vs No) | 434 (472) | 0.358 | Not significant |
| Insurance (ref = Private) | | | |
| – Public | 940 (521) | 0.071 | Marginally higher expenditure |
| – Uninsured | −5,924 (1,475) | <0.001 | Significantly lower expenditure |
| Observations | 18,513 | | |
| R-squared | 0.009 | Prob > F = 0.0000 | Whole Model is statistically significant |

**Table 2-Multivariate Regression Model for Emergency Visits**

| Key Variable | Coefficient (SE) | p-value | Interpretation |
|---|---|---|---|
| **Shared Decision Making** | **−0.056 (0.016)** | **0.001** | **Participants receiving SDM had 0.056 fewer ER visits on average than those without, controlling for covariates.** |
| **Other Covariates** | | | |
| **Variable** | **Coefficient (SE)** | **p-value** | **Interpretation** |
| Age (per year) | 0.0008 (0.0004) | 0.069 | Each additional year of age → +0.0008 more ER visits |
| Sex (Male vs Female) | −0.0088 (0.0129) | 0.496 | (not statistically significant) |
| Income | −0.0000011 (0.00000016) | <0.001 | Higher income is associated with fewer ER visits |
| Race (ref = White) | | | |
| – Black | 0.036 (0.019) | 0.059 | Black participants had slightly more ER visits compared to Whites (marginally significant) |
| – Other | 0.008 (0.031) | 0.804 | (not statistically significant) |
| Marital Status (Married vs Other) | 0.109 (0.013) | <0.001 | Married participants had more ER visits |
| College (Yes vs No) | −0.065 (0.013) | <0.001 | College-educated participants had fewer ER visits |
| Insurance (ref = Private) | | | |
| – Public only | 0.120 (0.014) | <0.001 | Public insurance participants had more ER visits compared to privately insured |
| – Uninsured | 0.091 (0.040) | 0.024 | Uninsured participants more ER visits compared to privately insured |
| Observations | 18,513 | | |
| R-squared | 0.023 | Prob > F = 0.0000 | Whole model is statistically significant |

[Reference Group- White, non-married, female, private insurance, no college, average age and income]

## RESULTS

The total medical expenditure in: Private insurance was $16,984 in Non-SDM and $ 15,115 in SDM, with an 11.01% decrease, Medicare was $18,376 in Non-SDM and $16,636 in SDM, with a 9.47% decrease, Medicaid was $21,451 in Non-SDM and $21,710 in SDM, with a 1.21% increase. Total Expenditure was $16,215 in Non SDM and $14,561 in SDM, with a 10.2% decrease. Emergency Visits were 0.40 in Non SDM and 0.32 in SDM, with a 20% decrease. The multiple regression models for both Total expenditure and Total emergency visits were statistically significant.

## CONCLUSION

- SDM plays an important role amongst cancer participants
- SDM helps to reduce total medical expenditure
- SDM helps to reduce the total emergency visits to the hospital

## Bibliography