

Determinants of Organ Donation

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Background

In the United States, deceased organ donation is managed by a system of 58 Organ Procurement Organizations (OPOs) that are responsible for offering eligible families the option of donating a loved one's organs at the time of death. Prior research has documented individual-level characteristics that impact familial authorization to donation, but potential regional-level determinants of donation have not been considered.

RQ: What is the magnitude of impact of sociocultural and socioeconomic indicators of regional health on OPOs' abilities to obtain familial authorization for organ donation?

Methods

Each OPO manages donation within a given geographic Donor Service Area (DSA). To estimate health within each DSA, the National County Health Rankings data¹ were consulted. This dataset provides county-level indicators of health for 3,136 counties across the United States. Select health indicators were aggregated (i.e., using total proportion and/or weighted average) across counties within each DSA to estimate health for the region.

Dependent variables were calculated using data from the Scientific Registry of Transplant Recipients² and include:

- Percent change in transplants facilitated by an OPO from 2011-2015
- Total donation rate from 2011-2015 (i.e., number of donors per families presented with donation opportunity)

Results

Table. National Regional-level Indicators of DSA Health

Indicator	Mean (s)
Weighted average income inequality	4.67 (s = 0.37)
Total social associations per 100,000 population	9.94 (s = 2.73)
Proportion of children in single parent homes	34.2% (s = 4.6)
Percent of population experiencing 10+ days of poor mental health per month	11.4% (s = 1.2)
Percent of population who do not speak English as a first language	3.5% (s = 3.0)

Correlations were calculated between regional-level indicators of health and relevant dependent variables. Significant correlations and/or those approaching traditional levels of statistical significance are highlighted below.

Table. Correlation of Regional-level Health Indicators with Percent Change in Transplant (2011-2015)

Indicator	r (p-value)
Weighted average income inequality	-0.24 (.068)
Proportion of children in single parent homes	-.21 (.113)
Percent of population experiencing 10+ days of poor mental health per month	-.21 (.111)

Results

Table. Correlation of Regional-level Health Indicators with Five-Year Donation Rate (2011-2015)

Indicator	r (p-value)
Weighted average income inequality	-0.27 (.040)
Total social associations per 100,000 population	.30 (.023)
Percent of population that does not speak English as a first language	-.36 (.007)

Conclusion

Results support the idea that performance in organ donation/transplantation is impacted by socioeconomic/sociocultural indicators of regional health. As such, results assist in framing organ donation as a public health issue.

OPO leadership is encouraged to support policies that may enhance the overall health of their DSA, and subsequently, improve authorization for donation. Relevant avenues to consider may include identifying best practices for communicating with non-English speaking families and/or developing partnerships with social organizations within their DSA.

References

- ¹ <http://www.countyhealthrankings.org/>
- ² <https://www.srtr.org/>