Table of Contents: The Association between Social Vulnerability and Fragmented Readmissions: An Analysis of the Florida State Inpatient Database

**Methods**

**Table 1: Social Vulnerability Index Contents**

|  |  |  |
| --- | --- | --- |
|  | **Category** | **Variable** |
|  | **Socioeconomic status** | **Below poverty** |
| **Unemployed** |
| **Income** |
| **No high school diploma** |
|  | **Household Composition/Disability** | **Aged 65 years or older** |
| **Aged 17 years or younger** |
| **Civilian with a disability** |
| **Single-parent households** |
|  | **Minority status/Language** | **Minority** |
| **Speak English "less than well"** |
|  | **Housing/Transportation** | **Multiunit structures** |
| **Mobile homes** |
| **Crowding** |
| **No vehicle** |
| **Group quarters** |

**Figure 1: Social Vulnerability Index and Quantile Groups**

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**Figure 2: Sample Admission-Readmission Pair Selection**

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**Result**

**Main analysis**

**Table 2: Demographic and Clinical Characteristics of the Study Samples Across Social Vulnerability Index (n=759371)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Social Vulnerability** | **Overall** | **Least** | **Second Least** | **Second Most** | **Most** | **P** |
|  |  |  |  |  |  |  |  |
| **Patient characteristics** |
| **AGEn=0 missing** | **Mean** | **62.3** | **63.4** | **64.3** | **63.0** | **60.9** | **<0.0001** |
| **18-65** | **48.8%** | **47.6%** | **45.2%** | **48.7%** | **53.9%** | **<0.0001** |
| **65 over** | **51.2%** | **52.4%** | **54.8%** | **51.3%** | **46.1%** |  |
| **SEXn=0 missing** | **Female** | **50.2%** | **51.1%** | **50.3%** | **50.2%** | **48.9%** | **<0.0001** |
| **Male** | **49.8%** | **48.9%** | **49.7%** | **49.8%** | **51.1%** |  |
| **RACEn=3347 missing** | **White** | **64.9%** | **66.7%** | **76.6%** | **64.5%** | **52.5%** |  |
| **Black** | **18.5%** | **16.2%** | **15.2%** | **18.6%** | **24.3%** |  |
| **Hispanic** | **14.4%** | **14.5%** | **6.4%** | **15.1%** | **20.9%** |  |
| **Asian or Pacific Islander** | **0.6%** | **0.7%** | **0.5%** | **0.5%** | **0.6%** |  |
| **Native American** | **6.8%** | **6.5%** | **7.5%** | **8.1%** | **5.9%** |  |
| **Other** | **1.5%** | **1.8%** | **1.2%** | **1.1%** | **1.6%** |  |
| **Other Characteristics** |
| **Locationn=12063 missing** | **non-CBSA** | **1.8%** | **2.2%** | **1.4%** | **3.0%** | **0.6%** | **<0.0001** |
| **Micropolitan** | **2.3%** | **2.0%** | **2.3%** | **3.1%** | **2.2%** |  |
| **Metropolitan** | **95.8%** | **98.3%** | **96.3%** | **93.9%** | **97.2%** |  |
| **Primary Payern=0 missing** | **Medicare** | **63.0%** | **64.4%** | **66.5%** | **62.9%** | **58.2%** |  |
| **Medicaid** | **13.3%** | **11.6%** | **11.1%** | **13.7%** | **17.1%** |  |
| **Private** | **13.4%** | **15.3%** | **12.2%** | **12.0%** | **13.5%** |  |
| **Self-pay** | **5.3%** | **5.0%** | **5.0%** | **5.3%** | **6.0%** |  |
| **No charge** | **2.1%** | **0.9%** | **2.5%** | **3.1%** | **2.4%** |  |
| **Other** | **2.8%** | **2.7%** | **2.6%** | **3.0%** | **2.9%** |  |
| **Homelessn=1991 missing** | **not identified** | **98.8%** | **99.0%** | **98.8%** | **99.0%** | **98.3%** | **<0.0001** |
| **homeless** | **1.2%** | **1.0%** | **1.2%** | **1.0%** | **1.7%** |  |
| **Median Income percentilen=21570 missing** | **1st** | **32.2%** | **28.9%** | **27.6%** | **31.7%** | **40.9%** | **<0.0001** |
| **2nd**  | **27.9%** | **26.1%** | **31.8%** | **30.7%** | **24.1%** |  |
| **3rd** | **23.7%** | **23.1%** | **26.8%** | **24.6%** | **20.6%** |  |
| **4th** | **16.2%** | **21.9%** | **13.9%** | **13.1%** | **14.4%** |  |
| **Admission typen=0 missing** | **Emergency** | **76.3%** | **75.6%** | **74.9%** | **76.4%** | **78.3%** | **<0.0001** |
| **Urgent** | **10.8%** | **9.9%** | **11.9%** | **11.3%** | **10.3%** |  |
| **Elective** | **12.1%** | **14.0%** | **12.3%** | **11.2%** | **10.6%** |  |
| **Trauma Center** | **0.8%** | **0.5%** | **0.8%** | **1.2%** | **0.9%** |  |
| **Readmission typen=0 missing** | **Emergency** | **72.8%** | **72.6%** | **72.1%** | **72.5%** | **74.1%** | **<0.0001** |
| **Urgent** | **11.9%** | **11.2%** | **12.9%** | **12.5%** | **11.5%** |  |
| **Elective** | **14.9%** | **15.9%** | **14.6%** | **14.6%** | **14.1%** |  |
| **Trauma Center** | **0.4%** | **0.3%** | **0.5%** | **0.4%** | **0.3%** |  |

**Table 3: Prevalence of Fragmented Readmission for Association with Social Vulnerability**

|  |  |
| --- | --- |
|  | **Odds Ratio (CI 95%) for Fragmented Readmission** |
| **Ref: Least socially vulnerable group** | **Unadjusted model** | **Adjusted model** |
| **Second least socially vulnerable group** | **1.24** | **1.25** |
| **(CI95 1.227-1.260)** | **(CI95 1.230-1.263)** |
| **Second most socially vulnerable group** | **1.17** | **1.16** |
| **(CI95 1.154-1.185)** | **(CI95 1.145-1.176)** |
| **Most socially vulnerable group** | **1.09** | **1.07** |
| **(CI95 1.075-1.104)** | **(CI95 1.059-1.088)** |

**Reference is the least socially vulnerable group.**

***Model 1: unadjusted***

***Model 2: Model 1 + female + race + age + race + primary payer + homeless + admission type + location type***

**Sensitivity Analysis**

**Table4: Sensitivity analysis: Prevalence of Fragmented Readmission for Association with Social Vulnerability**

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref: Least socially vulnerable group** | **Second Least socially vulnerable group** | **Second Most socially vulnerable group** | **Most socially vulnerable group** |
| **Odds Ratio (CI 95%) for Fragmentation** |
| **Total Readmission (Full model)** | **1.25 (CI95 1.230-1.263)** | **1.16 (CI95 1.145-1.176)** | **1.07(CI95 1.059-1.088)** |
| **Primary Payer** |  |  |  |
| **Readmission covered by Medicare**  | **1.25 (CI95 1.203-1.303)** | **1.17 (CI95 1.133-1.219)** | **1.04 (CI95 1.000-1.072)** |
| **Readmission covered by Medicaid**  | **1.21 (CI95 1.192-1.232)** | **1.11 (CI95 1.096-1.133)** | **1.08 (CI95 1.064-1.101)** |
| **Readmission covered by Private Payer** | **1.45 (CI95 1.401-1.508)** | **1.33 (CI95 1.284-1.382)** | **1.14 (CI95 1.095-1.177)** |
| **Admission Type** |  |  |  |
| **Emergency readmission** | **1.18 (CI95 1.158-1.198)** | **1.13 (CI95 1.113-1.150)** | **1.09 (CI95 1.071-1.107** |
| **Elective readmission** | **1.65 (CI95 1.598-1.711)** | **1.12 (CI95 1.086-1.161)** | **0.90 (CI95 0.873-0.934** |
| **DRG** |  |  |  |
| **Readmission DRG: Septicemia or Severe sepsis** | **1.19 (CI95 1.127-1.260)** | **1.10 (CI95 1.043-1.163)** | **1.23 (CI95 1.165-1.306)** |

**Table 5: Sensitivity analysis: Prevalence of Fragmented Readmission for Association with Granular Social Vulnerability Categories**

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref: Least Socially Vulnerable** | **Second Least Socially Vulnerable** | **Second Most Socially Vulnerable** | **Most Socially Vulnerable** |
| **Odds Ratio (CI 95%) for Fragmentation**  |
| **Category 1: Socioeconomic status** |
| **Unadjusted model Unemployment** | **1.18****(CI95 1.162-1.195)** | **1.06****(CI95 1.048-1.075)** | **1.04****(CI95 1.031-1.060)** |
| **Full modelUnemployment** | **1.22****(CI95 1.206-1.241)** | **1.09****(CI95 1.079-1.107)** | **1.07****(CI95 1.056-1.087)** |
| **Category 2: Household Composition/Disability** |
| **Single parent households SVI percentile** |
| **Unadjusted model Single parent households** | **1.09****(CI95 1.071-1.099)** | **1.01****(CI95 0.992-1.020)** | **1.06****(CI95 1.048-1.077)** |
| **Full modelSingle parent households** | **1.07****(CI95 1.059-1.087)** | **1.02****(CI95 1.007-1.036)** | **1.06****(CI95 1.045-1.075)** |
| **Category 3: Minority Status/Language**  |
| **English "less than well" SVI percentile** |
| **Unadjusted model Language** | **0.95****(CI95 0.935-0.959)** | **1.05****(CI95 1.038-1.065)** | **1.22****(CI95 1.199-1.232)** |
| **Full modelLanguage** | **0.95****(CI95 0.938-0.963)** | **1.03****(CI95 1.020-1.048)** | **1.24****(CI95 1.222-1.258)** |
| **Minority (except white, non-Hispanic) SVI percentile** |
| **Unadjusted model Minority** | **0.90****(CI95 0.884-0.909)** | **1.03****(CI95 1.013-1.043)** | **1.10****(CI95 1.081-1.114)** |
| **Full modelMinority** | **0.86****(CI95 0.848-0.873)** | **0.99****(CI95 0.975-1.005)** | **1.08****(CI95 1.065-1.100)** |
| **Category 4: Housing/Transportation** |
| **Mobile/Vehicle SVI percentile** |
| **Unadjusted model No Vehicle** | **0.91****(CI95 0.892-0.918)** | **0.97****(CI95 0.960-0.987)** | **1.06****(CI95 1044.-1.072)** |
| **Full modelNo Vehicle** | **0.92****(CI95 0.907-0.934)** | **0.98****(CI95 0.964-0.992)** | **1.05****(CI95 1033.-1.061)** |