Table 3: Associations between individual-, hospital-, and contextual-level factors and prostate cancer-specifc mortality (Base Model1) among men diagnosed with prostate cancer, San Francisco Bay Area and Los Angeles County 1997-2003

|  | **Deaths** | **Mortality** | | |  |  | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **n** | **HR** | **(95% CI)** | | **p-value2** | **p-trend2** | |
| **Individual-level sociodemographic factors** | |  |  | |  |  | |
| Education |  |  |  | |  |  | |
| High School Degree or Less | 91 | 1.36 | (0.97-1.91) | |  |  | |
| Some College | 62 | 1.18 | (0.83-1.68) | |  |  | |
| College Graduate or Higher | 65 | 1.00 | reference | | 0.24 | 0.07 | |
| Study Site |  |  |  | |  |  | |
| San Francisco Bay Area | 101 | 1.29 | (0.95-1.76) | |  |  | |
| Los Angeles County | 117 | 1.00 | reference | | 0.42 |  | |
| Race/ethnicity |  |  |  | |  |  | |
| Non-Hispanic White | 115 | 1.00 | reference | |  |  | |
| African American | 69 | 1.20 | (0.87-1.64) | |  |  | |
| Hispanic | 34 | 0.92 | (0.60-1.42) | | 0.36 |  | |
| Nativity |  |  |  | |  |  | |
| U.S.-born | 187 | 1.00 | reference | |  |  | |
| Foreign-born | 31 | 0.78 | (0.50-1.22) | | 0.17 |  | |
| **Tumor and treatment factors** | |  |  | |  |  | |
| Age at diagnosis (year) |  |  |  | |  |  | |
| 40-49 | 10 | 2.03 | (0.71-5.79) | |  |  | |
| 50-59 | 50 | 1.17 | (0.67-2.03) | |  |  | |
| 60-69 | 83 | 1.00 | reference | |  |  | |
| 70-79 | 67 | 0.80 | (0.45-1.40) | |  |  | |
| 80+ | 8 | 0.80 | 0.22-2.89) | | 0.66 | 0.35 | |
| Marital Status (at diagnosis) |  |  |  | |  |  | |
| Single/Never Married | 33 | 1.29 | (0.91-1.84) | |  |  | |
| Married | 145 | 1.00 | reference | |  |  | |
| Separated/Divorced | 26 | 1.18 | (0.77-1.80) | |  |  | |
| Widowed | 7 | 0.67 | (0.31-1.46) | |  |  | |
| Unknown | 7 | 0.77 | (0.35-1.71) | | 0.25 |  | |
| Stage |  |  |  | |  |  | |
| Localized | 33 | 1.00 | Reference | |  |  | |
| Advanced | 185 | **4.29** | **(2.98-6.19)** | | **<0.01** |  | |
| Histologic Grade |  |  |  | |  |  | |
| Grade I-II | 66 | **0.29** | **(0.22-0.39)** | |  |  | |
| Grade III-IV | 138 | 1.00 | reference | |  |  | |
| Unknown | 14 | 1.19 | (0.69-2.07) | | **<0.01** |  | |
| One or More Subsequent Tumors |  |  |  | |  |  | |
| No | 199 | 1.00 | reference | |  |  | |
| Yes | 19 | **3.45** | **(1.37-8.66)** | | **<0.01** |  | |
| **Tumor and treatment factors, continued** | |  |  | |  |  | |
| Surgery |  |  |  | |  |  | |
| None | 156 | 1.00 | reference | |  |  | |
| Local or NOS | 21 | **1.83** | **(1.16-2.88)** | |  |  | |
| Radical prostatectomy | 41 | **0.13** | **(0.07-0.23)** | | **<0.01** |  | |
| Radiation |  |  |  | |  |  | |
| None | 148 | 1.00 |  | |  |  | |
| Given | 70 | 1.17 | (0.88-1.56) | | 0.33 |  | |
| **Medical History** |  |  |  | |  |  | |
| Family history of prostate cancer |  |  |  | |  |  | |
| No | 185 | 1.00 | reference | |  |  | |
| Yes | 33 | 0.81 | (0.57-1.14) | | 0.25 |  | |
| Benign prostatic hyperplasia |  |  |  | |  |  | |
| No | 108 | 1.00 | reference | |  |  | |
| Yes | 96 | 0.94 | (0.70-1.25) | | 0.60 |  | |
| Unknown |  |  |  | |  |  | |
| Prostatitis |  |  |  | |  |  | |
| No | 127 | 1.00 | reference | |  |  | |
| Yes | 82 | 1.30 | (0.95-1.77) | | 0.16 |  | |
| Unknown |  |  |  | |  |  | |
| Comorbidities |  |  |  | |  |  | |
| No | 157 | 1.00 | reference | |  |  | |
| Yes | 61 | 0.83 | (0.61-1.14) | | 0.25 |  | |
| **Behavioral factors** |  |  |  | |  |  | |
| Body mass index (BMI, kg/m2), year prior to diagnosis | | |  | |  |  | |
| <25 | 66 | 1.00 | reference | |  |  | |
| 25-29 | 94 | 0.83 | (0.60-1.13) | |  |  | |
| 30+ | 55 | 1.08 | (0.75-1.55) | |  |  | |
| Unknown | ~ | 2.69 | (0.91-8.00) | | 0.06 | 0.79 | |
| Average daily caloric intake (kcal, year prior to diagnosis) | | |  | |  |  | |
| <1950 | 47 | 1.00 | reference | |  |  | |
| 1951-2584 | 45 | 0.92 | (0.62-1.38) | |  |  | |
| 2585-3301 | 44 | 0.86 | (0.57-1.30) | |  |  | |
| 3302+ | 56 | 1.10 | (0.74-1.64) | |  |  | |
| Missing | 26 | 1.53 | (0.92-2.53) | | 0.69 | 0.74 | |
| Average daily alcohol consumption (grams, year prior to diagnosis) | | | | |  |  | |
| 0 | 86 | 1.00 | reference | |  |  | |
| 1-5 | 21 | 1.36 | (0.84-2.20) | |  |  | |
| 5-9.9 | 19 | **2.29** | **(1.43-3.67)** | |  |  | |
| 10-14.9 | 14 | 1.28 | (0.73-2.24) | |  |  | |
| 15+ | 52 | 1.21 | (0.83-1.76) | | **<0.01** | 0.26 | |
| Unknown | 26 | **1.80** | **(1.13-2.85)** | | **<0.01** | 0.26 | |
| **Behavioral factors, continued** |  |  |  | |  |  | |
| Smoking status, year prior to diagnosis | | |  | |  |  | |
| Never | 515 | 1.00 | reference | |  |  | |
| Former | 929 | 0.98 | (0.71-1.5) | |  |  | |
| Current | 343 | 1.17 | (0.79-1.73) | |  |  | |
| Unknown | 13 | 4.56 | (1.67-12.46) | | 0.48 | **0.03** | |
| Physical Activity (hours/week, previous 5 years, recreational and non-recreational sources) | | | | | | | |
| <2.8 | 58 | 1.00 | reference | |  |  | |
| 2.8-9.2 | 49 | 0.77 | (0.53-1.12) | |  |  | |
| 9.3-22.9 | 53 | 0.90 | (0.61-1.32) | |  |  | |
| 23.0+ | 58 | 0.79 | (0.54-1.14) | |  |  | |
| Unknown | 0 |  |  | | 0.81 | 0.53 | |
| **Hospital-level factors** |  |  |  | |  |  | |
| NCI designated Cancer Center3 |  |  |  | |  |  | |
| No | 206 | 1.00 | reference | |  |  | |
| Yes | 12 | **0.38** | **(0.21-0.69)** | |  |  | |
| Hospital race/ethnicity4 |  |  |  | |  |  | |
| Q1 | 61 | 1.00 | Reference | |  |  | |
| Q2 | 60 | 0.95 | (0.63-1.44) | |  |  | |
| Q3 | 52 | 1.02 | (0.67-1.54) | |  |  | |
| Q4 | 45 | 0.64 | (0.40-1.03) | | 0.08 | 0.08 | |
| Hospital SES5 |  |  |  | |  |  | |
| Q1 | 61 | 1.00 | reference | |  |  | |
| Q2 | 55 | 0.91 | (0.62-1.35) | |  |  | |
| Q3 | 46 | **0.49** | **(0.31-0.77)** | |  |  | |
| Q4 | 56 | **0.58** | **(0.34-0.97)** | | **<0.01** | **<0.01** | |
| **Contextual-level factors** |  |  |  | |  |  | |
| Neighborhood SES6 | |  |  | |  |  | |
| Q1 (lowest) | 39 | **2.17** | **(1.30-3.60)** | |  |  | |
| Q2 | 45 | **1.85** | **(1.19-2.89)** | |  |  | |
| Q3 | 34 | 1.54 | (0.99-2.40) | |  |  | |
| Q4 | 31 | 1.00 | (0.66-1.53) | |  |  | |
| Q5 (highest) | 68 | 1.00 | reference | | **0.04** | **<0.01** | |
| Percentage of residents traveling 60+ minutes to work6 | | |  |  | |  | |
| Q1 | 57 | 1.38 | (0.96-2.00) | |  | |  |
| Q2 | 59 | 1.19 | (0.83-1.71) | |  | |  |
| Q3 | 46 | 1.04 | (0.70-1.54) | |  | |  |
| Q4 | 55 | 1.00 | reference | | 0.33 | | 0.07 |
|  | | | |  | |  | |
| **Contextual-level factors, continued** | | | |  | |  | |
| Percentage of residents traveling to work by car or motorcycle6 | | | |  | |  | |
| Q1 | 66 | 1.02 | (0.69-1.49) | |  | |  |
| Q2 | 57 | 1.08 | (0.74-1.59) | |  | |  |
| Q3 | 37 | 0.77 | (0.52-1.15) | |  | |  |
| Q4 | 57 | 1.00 | reference | | **0.04** | | 0.62 |
| Residential mobility6,7 |  |  |  | |  | |  |
| Q1 | 59 | 1.03 | (0.69-1.55) | |  | |  |
| Q2 | 53 | 1.12 | (0.75-1.67) | |  | |  |
| Q3 | 61 | 1.38 | (0.95-2.01) | |  | |  |
| Q4 | 44 | 1.00 | reference | | 0.28 | | 0.75 |
| Household crowding6 |  |  |  | |  | |  |
| Q1 | 39 | 1.00 | reference | |  | |  |
| Q2 | 45 | **0.49** | **(0.31-0.78)** | |  | |  |
| Q3 | 71 | **0.65** | **(0.43-0.97)** | |  | |  |
| Q4 | 62 | 1.00 | (0.70-1.43) | | **<0.01** | | **<0.01** |
| Percentage of multi-family housing units6,8 | | | | |  | |  |
| Q1 | 49 | 0.84 | (0.57-1.22) | |  | |  |
| Q2 | 44 | 0.81 | (0.55-1.20) | |  | |  |
| Q3 | 65 | 1.40 | (0.98-2.00) | |  | |  |
| Q4 | 59 | 1.00 | reference | | **0.02** | | 0.09 |
| Street connectivity (gamma measure9, quartiles6) | |  |  | |  | |  |
| Q1 | 40 | 1.00 | reference | |  | |  |
| Q2 | 61 | 1.15 | (0.78-1.70) | |  | |  |
| Q3 | 51 | 1.21 | (0.80-1.84) | |  | |  |
| Q4 | 65 | 1.27 | (0.82-1.95) | | 0.57 | | 0.28 |
| Businesses (total number, quartiles10) |  |  |  | |  | |  |
| Q1 | 55 | 1.00 | reference | |  | |  |
| Q2 | 43 | 0.68 | (0.45-1.00) | |  | |  |
| Q3 | 53 | 0.89 | (0.59-1.34) | |  | |  |
| Q4 | 66 | 0.95 | (0.65-1.37) | | 0.23 | | 0.80 |
| Restaurant Environment Index10,11 |  |  |  | |  | |  |
| 0 | 59 | 1.00 | reference | |  | |  |
| T1 | 48 | 0.89 | (0.60-1.32) | |  | |  |
| T2 | 58 | 1.20 | (0.83-1.75) | |  | |  |
| T3 | 52 | 0.87 | (0.59-1.30) | | 0.34 | | 0.84 |
| Food Retail Environment Index10,12 |  |  |  | |  | |  |
| 0 | 35 | 1.00 | reference | |  | |  |
| T1 | 68 | 1.24 | (0.81-1.89) | |  | |  |
| T2 | 68 | 1.13 | (0.74-1.70) | |  | |  |
| T3 | 46 | 0.90 | (0.58-1.39) | | 0.36 | | 0.38 |
| **Contextual-level factors, continued** |  |  |  | |  | |  |
| Parks (total number) |  |  |  | |  | |  |
| 0 | 63 | 1.00 | reference | |  | |  |
| 1-2 | 103 | 0.81 | (0.59-1.12) | |  | |  |
| 3 | 17 | 0.59 | (0.35-1.01) | |  | |  |
| 4 | 34 | 0.81 | (0.51-1.30) | | 0.29 | | 0.22 |
| Farmers markets (total number) |  |  |  | |  | |  |
| 0 | 161 | 1.00 | reference | |  | |  |
| 1 | 39 | 1.23 | (0.89-1.71) | |  | |  |
| 2+ | 17 | 0.91 | (0.54-1.53) | | 0.41 | | 0.80 |
| Traffic density10 |  |  |  | |  | |  |
| Q1 | 45 | 1.00 | reference | |  | |  |
| Q2 | 53 | 1.03 | (0.69-1.54) | |  | |  |
| Q3 | 66 | 1.34 | (0.91-1.98) | |  | |  |
| Q4 | 53 | 1.17 | (0.79-1.73) | | 0.36 | | 0.23 |

1. Base Model adjusted for age, race/ethnicity, and study location; stage-stratified; census block group-adjusted.

2. The reported p-value is for the association of the factor with overall survival, the reported p-trend is for the linear association across categories of the factor.

3. NCI Cancer Center designation not included in nested models due to low number of deaths associated with the ‘yes’ value.

4. Hospital race/ethnicity defined as the percentage of cancer patients that were non-Hispanic White at the time of diagnosis. This variable was not included in the nested models due to correlation with Hospital SES (r, 0.6838; p-value, <0.0001).

5. Hospital SES defined as the percentage of cancer patients residing in nSES Q5 at the time of diagnosis.

6. Based on the quintile/quartile distribution for block groups/census tracts in California.

7. Neighborhood residential mobility was measured as the percent of residents who lived in the same location from 1995-2000.

8. Percentage of multi-family housing units was defined as the percentage of total housing units that are not single family dwellings (i.e., structures with more than 2 units).

9. Measures considered were median block length, median block size, total intersections, total street segments, the alpha measure (ratio of the actual number of complete loops to the maximum possible given the number of intersections), and the gamma measure (ratio of actual number of street segments to the maximum possible given the number of intersections). None of these measures were associated with overall survival at p<0.05.

10. Based on the quartile/tertile distribution among all study cases

11. The Restaurant Environment Index is the ratio of the number of fast food restaurants compared to the number of other restaurants within the residential buffer. Cases with residential buffers with no businesses were included in the ‘0’ category.

12. The Retail Food Environment Index is the ratio of the number of convenience stores, liquor stores, and fast food restaurants compared to the number of supermarkets and farmers markets within the residential buffer. Cases with residential buffers with no businesses were included in the ‘0’ category.

SES, socioeconomic status; HR, hazard ratio; CI, confidence interval

Bold type indicates statistical significance