Exploring Social Vulnerability in Prostate Cancer Management: Insights from Watchful Waiting and Active Surveillance (1998-2017)

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Background: Active surveillance (AS) and watchful waiting (WW) are two deferred management strategies for low-risk and selective intermediate-risk prostate cancer (PCa), with AS recently emerging as the gold standard. Subsequently, the utilization of the Social Vulnerability Index (SVI) is transforming and enhancing our understanding of healthcare disparities and social risk factors in the context of cancer care. In this study, we investigated the roles of watchful waiting and active surveillance in managing low and intermediate-risk prostate cancer, examining how social vulnerability influences the choice between these two management strategies.

Methods: The Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) database was used to identify men diagnosed with localized, low, and intermediate-risk prostate cancer (i.e., those potentially eligible for active surveillance) from 1998 to 2017. Data from participants in the CaPSURE registry were geocoded and deidentified, then integrated with publicly available Social Vulnerability Index (SVI) data. Assessment of social vulnerability was derived from 15 social factors organized into four themes: socioeconomic status, household composition and disability, minority status and language, and housing and transportation. We conducted multinomial logistic regression modeling to examine the association between the Social Vulnerability Index (SVI) and two management strategies: watchful waiting (WW) and active surveillance (AS).

Results: Among 681 low-risk and intermediate-risk prostate cancer patients diagnosed from 1998 to 2017, participants were categorized into two groups based on their treatment choice: 135 patients in the watchful waiting (WW) group and 546 patients in the active surveillance (AS) group, indicating a shift towards increased utilization of active surveillance. The mean SVI for the watchful waiting (WW) group is higher (mean = 1.37) compared to the active surveillance (AS) group (mean = 0.99), suggesting that patients undergoing watchful waiting may experience greater overall levels of social vulnerability. The most significant differences are observed in Theme 1 (Socioeconomic Status) with a p-value of 0.03 and in Theme 3 (Racial and Ethnic Minority Status) with a p-value of less than 0.01, indicating that socioeconomic factors and minority status are more pronounced among patients in the WW group compared to those in the AS group.

Conclusion: For patients with low and intermediate-risk localized prostate cancer, those in the watchful waiting group exhibited higher social vulnerability, particularly in areas with greater socioeconomic challenges and racial and ethnic minority status. Our findings underscore that patients with higher social vulnerability who are undergoing watchful waiting may not receive appropriate treatment options in a timely manner, potentially leading to worse outcomes compared to those in active surveillance.

Conflicts of Interest Disclosure Statement: The authors have no conflicts of interest to disclose.

Table 1: SVI Among Prostate Cancer Patients: Watchful Waiting (WW) Compared to Active Surveillance (AS)

	N Obs	Variable	N	Mean	Std Dev	Minimum	25th Pctl	Median	75th Pctl	Maximum	K-W* p-val
WW	135	F_TOTAL	135	1.37	2.23	0.00	0.00	1.00	2.00	11.00	0.24
		F_THEME1	135	0.36	0.83	0.00	0.00	0.00	0.00	4.00	0.03
		F_THEME2	135	0.49	0.78	0.00	0.00	0.00	1.00	3.00	0.11
		F_THEME3	135	0.10	0.31	0.00	0.00	0.00	0.00	1.00	<.01
		F_THEME4	135	0.42	0.83	0.00	0.00	0.00	1.00	4.00	0.97
AS	546	F_TOTAL	546	0.99	1.58	0.00	0.00	0.00	1.00	10.00	
		F_THEME1	546	0.25	0.76	0.00	0.00	0.00	0.00	4.00	
		F_THEME2	546	0.34	0.59	0.00	0.00	0.00	1.00	3.00	
		F_THEME3	546	0.03	0.18	0.00	0.00	0.00	0.00	1.00	
		F_THEME4	546	0.36	0.67	0.00	0.00	0.00	1.00	4.00	