

## OVERVIEW

My project is an exploratory investigation of the utility of spatial analysis for understanding a possible relationship between the proportion of veterans within a community and rates of intimate partner violence (IPV)\* in the United States. Rates of IPV perpetrated by current or former members of the U.S. military is between “one to three times higher than rates found among representative studies of the general population” (Marshall, Panuzio, and Taft, 864). To analyze if these rates influence IPV rates within the full community, I ask my first research question:

### 1) Is veteran density correlated with rates of gender violence?

Within the veteran community, post-traumatic stress disorder (PTSD) is highly correlated with greater rates of IPV. In fact, Marshall et al.’s review of existing literature about IPV in the veteran community found that PTSD, “largely accounts for the relationship between combat exposure and IPV perpetration,” with rates between 33 to 58 percent (862, 865-866). This leads me to question if access to healthcare provided by Veterans Affairs (VA) facilities may mitigate the effects of PTSD and therefore decrease rates of IPV. My second inquiry is as follows:

### 2) Does proximity to a VA facility influence rates of IPV?

\*For the purposes of this study, IPV is defined by the National Intimate Partner and Sexual Violence Survey’s question about lifetime prevalence of rape, physical violence, and/or stalking by an intimate partner.

## ANALYSIS

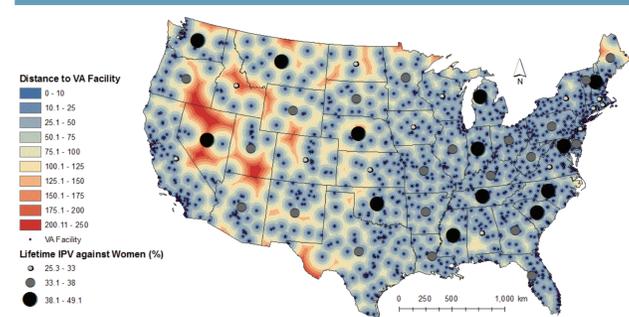
I conducted my analysis at two different levels: (1) all states within the continental U.S. and (2) all counties within the continental U.S. I am curious if locations with concurrent characteristics of higher distance to VA facility and higher veteran density have a higher rate of IPV. For all the maps, I display the rates of lifetime intimate partner violence (IPV) within each state to try to visualize this question. IPV data is represented by different size circles within each state. Unfortunately I do not have IPV data at a county level, so I include the state level IPV data on county maps as well.

First, I created a map that shows the distance to each Veterans Affairs (VA) facility. Using this map, I calculated the mean distance to a VA facility for each state and county. Next, I mapped the density of veterans within each state and county. I then combined these two datasets (mean distance to a VA facility and veteran density).

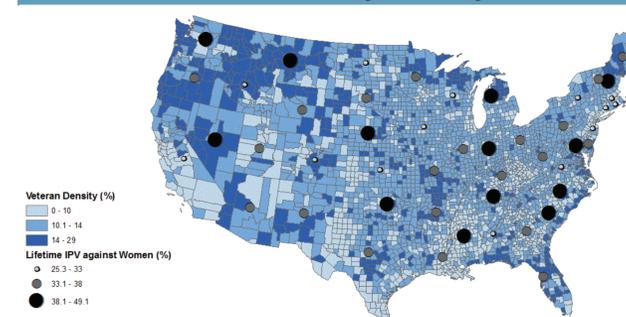
	Low veteran density, in percent (1)	Medium veteran density (2)	High veteran density (3)
Low distance to VA facility, in km (10)	11	21	31
Medium distance to VA facility (20)	12	22	32
High distance to VA facility (30)	13	23	33

# Veteran Intimate Partner Violence: Exploratory Analysis of Density and VA Access

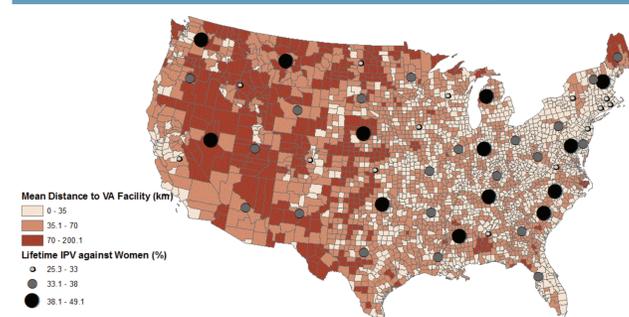
## VA Distance



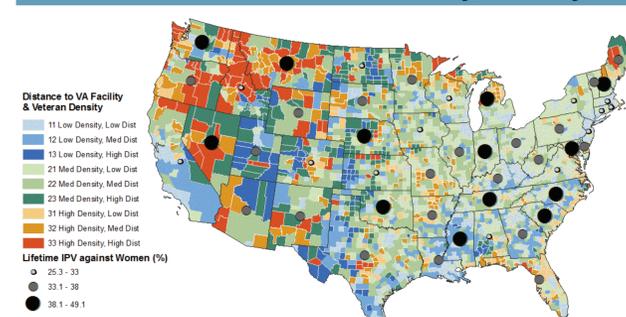
## Veteran Density, County



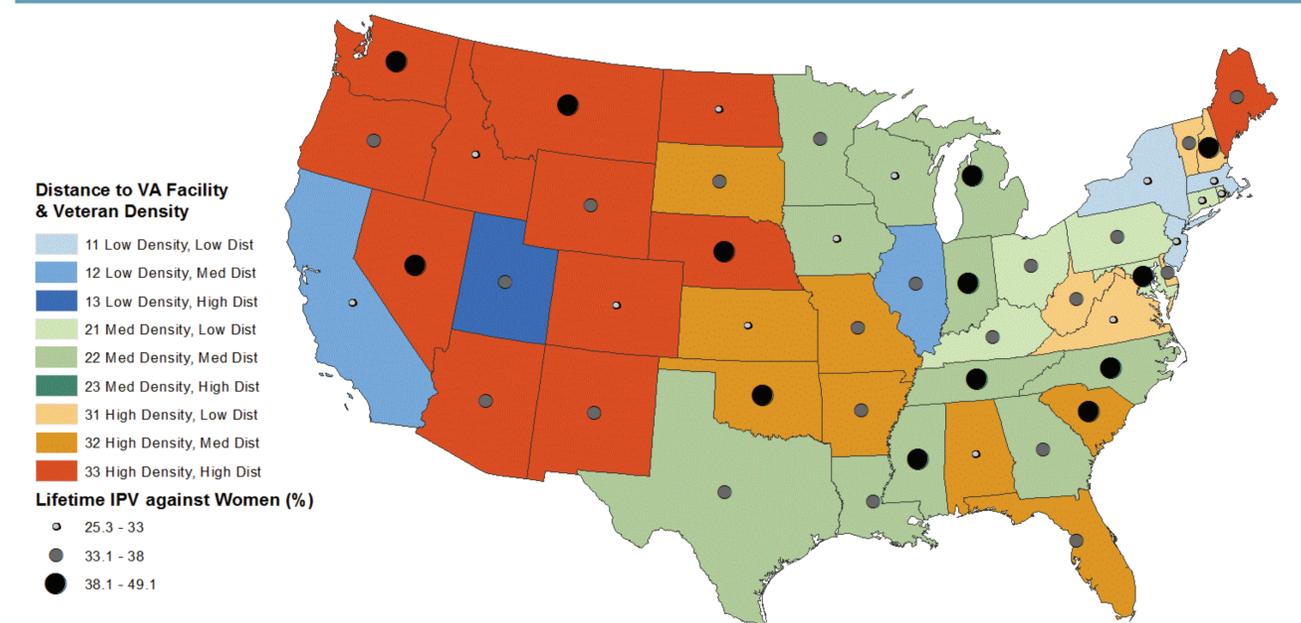
## Mean VA Distance, County



## VA Distance & Veteran Density, County



## VA Distance & Veteran Density, State



## VARIABLES

I coded the administrative level with the method shown in the table to the left. The ranges in the matrix are slightly different for states and counties.

- For the counties, the VA distance (km) are low = 0 - 35, medium = 35.1 - 70, and high = 70.1 - 200. The

categories for veteran densities (% of total population) are low = 0 - 10, medium = 10.1 - 14, and high = 14.1 - 29.

- For the states, the VA distance categories (km) are low = 0 - 30, medium = 30.1 - 60, and high = 60.1 - 200. The veteran densities (%) are low = 0 - 9, medium = 9.1 - 11, and high = 11.1 - 29.

## LIMITATIONS

There are serious limitations in my data. For the measure of IPV, I used the NIPSV survey, which provides estimates and 95 percent confidence intervals for each state. The Center for Disease Control cautions that the intervals – which have quite a large range – should be used in comparisons between states as opposed to the single estimate figure. In order to display a single data point graphically, I only used the estimate and not the range. Additionally, I could not find county-level data for IPV, so my comparisons with veteran density and distance to a VA facility at the county level could not be directly related to data on gender violence (and I therefore do not discuss that level in my results).

For the purposes of my inquiry, I was interested in veterans’ access to resources that could mitigate the effects of PTSD. Using VA facilities as a proxy for this is imprecise, since there are other resources veterans may use to access healthcare and not all VA facilities are equipped to support veterans’ mental healthcare.

Finally, my analysis ignores a slew of other demographic variables that may relate to IPV.

## RESULTS

My spatial analyses reveal no overall significant relationship between lifetime rates of IPV within states and my variables: veteran density, mean distance to VA facility, or the joint map that combines the two variables. There is one cluster of five states in the Northeast (NY, MA, CT, RI, NJ) with low distance to a VA facility and either low or medium veteran density, and they all have low rates of IPV.

It is also interesting to note that 11 western states have both high densities of veterans and large mean distances to a VA facility (coded 33, dark red). However, the rates of IPV in these states range the spectrum, so there does not appear to be a strong association between the variables. Nevertheless, the Department of Veterans Affairs may want to consider increasing services – especially around the Northern Nevada (my homeland!) / Southeast Oregon border, where the VA distance map shows a large track of red that indicates 200 km or over to the nearest VA facility. Southern Utah is also a VA desert, but Utah is a low veteran density state so may be less in need of services.

## CITATIONS

Cartographer: Casey Hogle

May 6, 2013

**Citation:** Amy D. Marshall, Jillian Panuzio, Casey T. Taft. (2005). “Intimate partner violence among military veterans and active duty servicemen.” *Clinical Psychology Review*, 25, 862-876.

**Data Sources:** Department of Veterans Affairs (VA facilities); American Community Survey, US Census Bureau (veteran density); National Intimate Partner and Sexual Violence Survey, CDC (IPV); ESRI, derived from Tele Atlas (admin boundaries)



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