# Structural Stigma and the Transition to Adulthood: Examining Marriage and Independent Living among Deaf Men in Nineteenth Century America

Megan Lemmon

## SHORT ABSTRACT

Structural stigma—the conditions of the social environment that limit the resources and opportunities available to members of stigmatized groups—contributes to health disparities and may impact other areas of social life. This study uses a historical case study to examine whether structural stigma affects the transition to adulthood for members of a stigmatized group: deaf individuals in 19th century America. Although deafness was particularly stigmatized in this context, qualitative research identifies certain places ("deaf enclaves") where this stigma was reduced. Using data from the 1850 census, I find that deaf men living in these enclaves were more likely to marry relative to their peers living elsewhere, while hearing men in these locations were slightly less likely to marry. Enclave residence was not associated with establishing an independent residence for deaf men. These results suggest that structural stigma may contribute to disparities in marriage as a pathway to adulthood.

Stigma contributes to social inequality and scholars are increasingly calling attention to structural forms of stigma—the norms, policies, and other conditions of the social environment that limit the resources and opportunities available to members of stigmatized groups (Hatzenbuehler and Link 2014). Research shows that greater structural stigma is associated with negative health outcomes for members of stigmatized groups, including sexual minorities (Hatzenbuehler & Keyes, 2013; Hatzenbuehler 2011), blacks (Lukachko et al. 2014), and Hispanics (Hatzenbuehler et al. 2017). This body of work is beginning to illuminate the ways that structural stigma contributes to health disparities, but few studies have examined whether structural stigma impacts other kinds of social disparities (Hatzenbuehler 2017; Link et al. 2004).

One important area of social life that has not yet received much attention in the structural stigma literature is the transition to adulthood. Several social transitions are key markers of adulthood, including completing school, entering the labor force, marrying, becoming a parent, and establishing an independent residence (Hogan and Astone 1986). Hogan and Astone (1986) point out that institutional arrangements are important in determining what kinds of pathways to adulthood are available and that not all groups have equal access to these pathways. Structural stigma may affect the pathways to adulthood available to members of stigmatized groups, which may in turn have long term consequences for health (Lillard and Waite 1995).

Individuals with disabilities are often excluded from these key pathways to adulthood. Compared to their nondisabled peers, disabled young adults are less likely to have a full-time job, establish an independent residence, marry, and have children by their mid-twenties (Janus 2009). Critical disability scholars argue that these disparities result from social conditions like structural stigma (e.g., Oliver 1990). Yet few studies have been able to test this theory and link measures of structural stigma to individual-level outcomes.

This paper uses a historical case study to examine whether structural stigma affects two important pathways to adulthood—marriage and establishing an independent residence—among deaf individuals in 19th century America. Deafness became increasingly stigmatized in the United States during the mid to late 19th century due to a variety of factors, including industrialization and the rise of the eugenics movement (Winzer 1986). Compared to the general population, deaf individuals were much less likely to marry, (Fay 1898) which was then considered the "definitive" transition to adulthood (Arnett 1998, p. 225).

Although deafness was stigmatized in general during this time, historical and ethnographic studies suggest that this stigma was reduced in certain geographic locations and that deaf individuals were more integrated in these communities (Groce 1985; Lane, Pillard, and Hedberg 2011). Lane, Pillard, and Hedberg (2011) identify three such places: Henniker and nearby towns in New Hampshire, the Sandy River region in Southern Maine, and the island of Martha's Vineyard in Massachusetts. They refer to these locations as "deaf enclaves." On the island of Martha's Vineyard, for example, most of the island inhabitants learned sign language and substantially reduced the communication barrier between hearing and deaf individuals. Deaf islanders were seen as "unique individuals" rather than members of a disabled minority group (Groce 1985, p. 4). I leverage this geographic variation in structural stigma to test whether

structural stigma contributed deaf men's ability to marry and establish an independent residence. I also attempt to account for several contextual factors besides stigma that may influence deaf men's ability to marry and establish an independent residence. These include the representation of deaf individuals in their county, the prevalence of hereditary deafness (deafness from causes like scarlet fever may have been accompanied by other health limitations), and the county concentration of urban and faming locations. Given that individuals with disabilities continue to face structural stigma and blocked pathways to adulthood, this study may be able to shed light on whether structural stigma contributes to disparities in the transition to adulthood today.

## DATA AND METHODS

The data for this study come from the 1850 full census available through IPUMS (Ruggles et al. 2015). These data are ideal because they overlap with the existence of the deaf enclaves identified by Lane et al. (2011) where structural stigma was likely reduced and because they contain information on every deaf person recorded by the 1850 census-takers. Given that deafness is rare (Schein and Delk 1974), using the full census, rather than the subsamples that are available for other nineteenth century censuses, is necessary to have a large enough sample of deaf individuals to compare those living in enclave locations to those living elsewhere.

### Sample

I restrict my analytic sample to males[1] between the ages of 20 and 40. I begin with a random 5% sample of hearing individuals and the full sample of deaf individuals. I then exclude the following cases: women, men below age 20 and above age 40, respondents with an unknown country of birth (n = 503), and those currently attending a residential deaf school (n = 95). My final analytic sample contains 171,617 individuals including 1,903 deaf individuals.

### Measures

Dependent variables

My first dependent variable is a dichotomous indicator that the person has *established an independent residence*. I construct this measure based on whether his parent(s) are living in the same household from the household roster that was constructed by IUPMS staff (Ruggles et al. 2015). I also use information from variables on the type of residence that were constructed by IUPMS staff. If the individual is not living with his parents and is not living in an institution like a prison or hospital, I code him as having an independent residence.

My second dependent variable is a dichotomous indicator that the individual is *currently married*. Unfortunately, the 1850 census did not collect information on marital status or household relationships, so this variable is based on location of the spouse in the household roster constructed by IPUMS staff. If an individual is living with their spouse and is not living with their parents[2], I count them has having married. This may underestimate the number of men who have ever married if their spouse passed away or is not living in the same household at the time of the census, but this is the best available measure in the 1850 census data.

[1] Given gendered norms about independent living at this time, I focus on men's experiences for the current study. Before PAA I plan to examine women's experiences as well.

[2] I exclude those living with their parents to account for siblings that may have incorrectly been coded as spouses.

Independent variables

I have two primary explanatory variables in this study: whether the individual is *deaf* and *deaf enclave residence*. Lane and colleagues (2011) identified three locations as prominent deaf enclaves in the 19th century: New Hampshire (Henniker and nearby towns); Maine (the Sandy River region in Southern Maine), and the island of Martha's Vineyard in Massachusetts. I classify places in New Hampshire and Maine as being part of a deaf enclave by locating every town mentioned in Lane et al.'s (2011) study within their 1850 county boundaries[3]. They identified six towns in New Hampshire that were located within two counties (Merrimack and Hillsborough) in 1850. They identified ten towns in Maine that were located within two counties (Franklin and Kennebec) in 1850. I coded these five counties (two in New Hampshire, two in Maine, and Dukes county containing Martha's Vineyard in Massachusetts) as "core" enclave locations. However, Lane et al. (2011) note that the borders of the Maine and New Hampshire enclaves are fuzzy. Moreover, the values and norms of these places may have spilled over to surrounding counties[4]. To account for this, I also identified all counties bordering the New Hampshire and Maine core enclave locations. In 1850, there were 9 counties that shared a border with the New Hampshire core enclave and 6 counties bordering the Maine core enclave. I code these 15 counties as "periphery" enclave locations. See Figure 1 for a graphic representation of these deaf enclave locations. I aggregate together the 5 core counties and 15 periphery counties, such that anyone who lives in any of these 20 counties is counted as living in a deaf enclave. In supplementary analyses (not shown) I also estimate models that distinguish periphery counties from core counties and test whether the three enclave locations (New Hampshire, Maine, and Martha's Vineyard) are distinct from each other.

Control variables

The following analyses include several control variables from the 1850 census data that may be correlated with marriage and establishing an independent residence. At the individual level, I include variables for *race* (1=nonwhite), *nativity* (1=foreign-born), *age*, *other disability* (1=has disability other than deafness), and *employment status* (1=not currently employed). I also control for the following household characteristics: *region*, *urbanicity* (1=urban area), and whether they live in a *farming household* (1=at least one person in household listed farmer as his occupation).

I also include several county-level control variables to better account for contextual factors that may affect men's ability to marry and establish an independent household beyond differences in structural stigma. I control for the percentage of the county that is urban, the percentage of farming households, the sex ratio (measured as the number of men ages 15-50 divided by the number of women ages 15-50), the number of deaf individuals in the county per 1,000 residents, and the percentage of deaf individuals that have deaf family members besides their spouse in their household (to better account for hereditary deafness).

[3] I use the county of residence because county is the smallest geographic unit consistently available in the 1850 census.

[4] As an island, Martha's Vineyard shares no borders with other counties and was described as having a culture that is totally distinct from mainland Massachusetts at this time (Groce 1985).

**Modeling strategy**

To test whether living in a deaf enclave is associated with a greater likelihood of marrying and establishing an independent residence for deaf individuals—and not just greater opportunities for everyone—my models will include an interaction term indicating an individual is deaf and lives in an enclave. This allows me to test whether the effect of living in an enclave on marrying and living independently is significantly different for deaf and hearing individuals. First, I estimate an additive model (Model 1) showing the associations between deafness, enclave residence, and marrying or establishing an independent residence, net of individual- and household-level controls. Next, I include the deaf and enclave interaction term (Model 2) to test whether the effect of living in an enclave on marrying and establishing an independent residence is significantly different for deaf individuals and hearing individuals. Finally, if the deaf*enclave interaction term is statistically significant, I include county-level control variables (Model 3) to better account for alternative explanations to structural stigma. I show results from logistic regression models, but I will explore a multi-level modeling strategy before the PAA conference. (Based on my research predicting other indicators of deaf men's well-being I do not expect the results to change much.)

PRELIMINARY RESULTS

Table 1 shows descriptive statistics for the full sample and the subsample of deaf individuals. As shown in Table 1, deaf men were less likely to be married and have an independent residence in 1850. Among the full sample, 51% of men between the ages of 20 and 40 were married, compared to only 20% of deaf individuals. 78% of the full sample had established an independent residence whereas only 49% of deaf men were living independently. Table 2 compares enclave and non-enclave locations. Deaf enclaves differed from non-enclave locations in several ways. Notably, enclaves have a greater representation of deaf individuals (.66 deaf individuals per 1,000 residents in enclaves compared to .49 elsewhere), as well as a greater number of deaf family ties (16% of deaf enclave residents have a deaf family member in their household vs. 12% elsewhere). Enclaves were also more urban compared to the rest of the U.S. (49% vs. 22%) and contained fewer farms (37% vs. 46%). Overall, there are small differences in the percent married and percent with an independent residence between enclave and non-enclave locations; 74% of men in enclaves had an independent residence compared to 78% elsewhere and 47% had married compared to 51% elsewhere.

Table 3 contains coefficients from models estimating the conditional effects of deafness and enclave residence on establishing an independent residence. Model 1 shows the results of the additive models. I find that deafness is negatively associated with forming an independent household ($b$= -1.30, $p$<.001) and but enclave residence is not statistically significant once other control variables are included. Model 2 includes the interaction between deafness and enclave residence, and I find no evidence for a statistically significant interaction. That is, living in an enclave does not appear to influence deaf men's ability to establish an independent residence.

Table 4 shows results from models predicting marriage. As shown in Model 1, deafness is negatively associated with marriage ($b$= -1.78, $p$<.001). Enclave residence is also negatively

associated with marriage ($b$= -.11, $p$<.001). Model 2 includes the interaction term indicating the person is deaf and lives in an enclave, which is positive and statistically significant ($b$= .51, $p$<.05), indicating that deaf men are more likely to marry if they live in an enclave location compared to elsewhere. Including county-level covariates does not weaken this association and in fact, the interaction coefficient slightly increases in size. Supplemental models (not shown) indicate that the county sex ratio is primarily responsible for this finding, as enclaves have fewer men for every woman between the ages of 15 and 50 compared to the rest of the United States. Surprisingly, the inclusion of the county-level indicators for the proportion deaf and deaf family ties does not affect the size of the coefficient for the deaf in an enclave interaction term. Figure 2 displays the predicted likelihood of marrying for deaf and hearing men by enclave residence, controlling for individual, household, and county characteristics (based on estimates from Model 3). Among hearing individuals, 49% of those living in an enclave are predicted to be married compared to 52% living elsewhere. In contrast, 26% of deaf individuals are predicted to be married in enclave locations compared to 20% living elsewhere.

## DISCUSSION

This paper examines whether structural stigma affects the two key pathways to adulthood: marriage and establishing an independent residence. By focusing on deaf individuals in 19th century America as a unique historical case, I find support for the idea that structural stigma affected deaf men's ability to marry. Deaf men living in places where structural stigma was reduced ("deaf enclaves") were more likely to marry compared to their peers living elsewhere, whereas hearing men were slightly less likely to marry if they lived in these locations.

I did not find support for the idea that structural stigma affected deaf men's chances of establishing an independent residence. It may be the case that in this context, structural stigma exerts a stronger influence on the ability to marry compared to establishing an independent residence. Given the high mortality rate during this time (Meeker 1971), men may be living independently simply because their parents died. If this is the case, structural stigma may strongly influence deaf men's ability to live independently. In contrast, marriage requires finding a partner, and stigma likely affects deaf men's perceived attractiveness as a marriage partner.

Before PAA, I will examine include women in my analyses and test whether there are differences in the ability to marry and live independently for deaf men and women. I will also estimate models using a multi-level modeling approach. I plan to look for other contextual factors that may influence these outcomes to better account for geographic variation in factors besides structural stigma, and will include these additional control variables in my models.

While my hypothesis was not supported for establishing an independent residence, the results for marriage are consistent with the idea that structural stigma limits certain pathways to adulthood. Furthermore, these results suggest that members of stigmatized groups have greater opportunities in places where structural stigma is reduced. Although it focuses on a historical case, this study can inform our understanding of how structural stigma contributes to social disparities that remain salient today.

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Table 1. Descriptive Statistics

| | | **Full sample** | **Deaf subsample** | **Hearing subsample** |
|---|---|---|---|---|
| | Range | | Mean or proportion | |
| Independent residence | 0 , 1 | 0.78 | 0.49 | 0.78 |
| Is married | 0 , 1 | 0.51 | 0.20 | 0.51 |
| Is deaf | 0 , 1 | 0.01 | -- | -- |
| Lives in an enclave | 0 , 1 | 0.06 | 0.09 | 0.06 |
| Lives in a periphery county | 0 , 1 | 0.05 | 0.07 | 0.05 |
| *Individual covariates* | | | | |
| Age | 20 - 40 | 28.82 | 29.22 | 28.81 |
| Race: non-white | 0 , 1 | 0.02 | 0.02 | 0.02 |
| Foreign born | 0 , 1 | 0.21 | 0.10 | 0.21 |
| Has other disability | 0 , 1 | 0.003 | 0.02 | 0.003 |
| Is not currently employed | 0 , 1 | 0.09 | 0.32 | 0.08 |
| *Household covariates* | | | | |
| Urban location | 0 , 1 | 0.24 | 0.17 | 0.24 |
| Is a farm | 0 , 1 | 0.45 | 0.57 | 0.45 |
| Region (omitted: Middle Atlantic) | | | | |
| New England | 0 , 1 | 0.14 | 0.17 | 0.14 |
| East North Central | 0 , 1 | 0.22 | 0.19 | 0.22 |
| South Atlantic | 0 , 1 | 0.14 | 0.16 | 0.14 |
| East South Central | 0 , 1 | 0.22 | 0.13 | 0.22 |
| West | 0 , 1 | 0.10 | 0.07 | 0.10 |
| *County-level covariates* | | | | |
| % households in urban area | 0 - 97.4 | 20.78 | -- | -- |
| % farming households | 0 - 100 | 45.29 | -- | -- |
| Sex ratio | .75 - 6 | 1.17 | | |
| % deaf with deaf family member in household | 0 - 100 | 12.41 | -- | -- |
| Number deaf in county per 1,000 | 0 - 5.46 | 0.50 | -- | -- |
| N | | 171,617 | 1,903 | 169,714 |

Data come from the 1850 full census

Sample includes males ages 20-40; contains all deaf and random 5% of hearing individuals

Table 2. Descriptive Statistics comparing enclave & non-enclave locations

| | | Deaf enclaves | | |
|---|---|---|---|---|
| | **Non-enclaves** | **All counties** | **Core counties** | **Periphery counties** |
| | Mean or proportion | | | |
| Independent residence | 0.78 | 0.74 | 0.68 | 0.75 |
| Is currently married | 0.51 | 0.47 | 0.45 | 0.48 |
| Is deaf % (N) | 0.01 | 0.02 | 0.02 | 0.02 |
| *Individual covariates* | | | | |
| Age | 28.81 | 28.89 | 28.85 | 28.90 |
| Race: non-white | 0.02 | 0.003 | 0.001 | 0.003 |
| Foreign born | 0.21 | 0.15 | 0.08 | 0.17 |
| Has other disability | 0.00 | 0.00 | 0.01 | 0.00 |
| Is not currently employed | 0.09 | 0.07 | 0.07 | 0.07 |
| *Household covariates* | | | | |
| Urban location | 0.22 | 0.49 | 0.37 | 0.51 |
| Is a farm | 0.46 | 0.37 | 0.49 | 0.35 |
| *County-level covariates* | | | | |
| % households in urban area | 19.39 | 43.84 | 31.73 | 45.95 |
| % farming households | 45.71 | 38.26 | 51.16 | 36.00 |
| Sex ratio | 1.18 | 0.97 | 0.95 | 0.97 |
| % deaf with deaf family member in household | 12.17 | 16.08 | 26.37 | 14.29 |
| Number deaf in county per 1,000 residents | 0.49 | 0.66 | 0.87 | 0.62 |
| N | 161,904 | 9,713 | 1,445 | 8,268 |

Data come from the 1850 full census

Sample includes males ages 20-40; contains all deaf and random 5% of hearing individuals

Table 3. Coefficients from logistic regression models predicting independent residence

| | Model 1 | Model 2 |
|---|---|---|
| Is deaf | -1.30 *** | -1.31 *** |
| | (0.05) | (0.06) |
| Lives in enclave | -0.06 | -0.07 |
| | (0.03) | (0.03) |
| Deaf * enclave | -- | 0.13 |
| | | (0.19) |
| *Individual covariates* | | |
| Age | 0.17 *** | 0.17 *** |
| | (0.00) | (0.00) |
| Race: non-white | 0.27 *** | 0.27 *** |
| | (0.05) | (0.05) |
| Foreign born | 0.73 *** | 0.73 *** |
| | (0.02) | (0.02) |
| Has other disability | -1.79 *** | -1.79 *** |
| | (0.11) | (0.11) |
| Is not currently employed | -1.04 *** | -1.04 *** |
| | (0.02) | (0.02) |
| *Household covariates* | | |
| Urban location | -0.10 *** | -0.10 *** |
| | (0.02) | (0.02) |
| Is a farm | -1.16 *** | -1.16 *** |
| | (0.02) | (0.02) |
| Region (omitted: Middle Atlantic) | | |
| New England | -0.08 ** | -0.08 ** |
| | (0.03) | (0.03) |
| East North Central | 0.36 *** | 0.36 *** |
| | (0.02) | (0.02) |
| South Atlantic | 0.21 | 0.21 |
| | (0.02) | (0.02) |
| East South Central | 0.51 *** | 0.51 *** |
| | (0.02) | (0.02) |
| West | 0.84 *** | 0.84 *** |
| | (0.03) | (0.03) |
| Constant | -2.84 | -2.84 |

Data come from the 1850 full census

Sample includes males ages 20-40; contains all deaf and random 5% of hearing individuals

* $p < .05$; ** $p < .01$; *** $p < .001$; standard errors in parentheses

Table 4. Coefficients from logistic regression models predicting marriage

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Is deaf | -1.78 *** | -1.83 *** | -1.88 *** |
| | (0.07) | (0.07) | (0.07) |
| Lives in enclave | -0.11 *** | -0.12 *** | -0.14 *** |
| | (0.03) | (0.03) | (0.03) |
| Deaf * enclave | -- | 0.51 * | 0.54 * |
| | | (0.21) | (0.21) |
| *Individual covariates* | | | |
| Age | 0.17 *** | 0.17 *** | 0.18 *** |
| | (0.00) | (0.00) | (0.00) |
| Race: non-white | -0.41 *** | -0.41 *** | -0.38 *** |
| | (0.04) | (0.04) | (0.04) |
| Foreign born | -0.49 *** | -0.49 *** | -0.40 *** |
| | (0.01) | (0.01) | (0.01) |
| Has other disability | -2.42 *** | -2.42 *** | -2.55 *** |
| | (0.17) | (0.17) | (0.19) |
| Is not currently employed | -1.13 *** | -1.13 *** | -1.18 *** |
| | (0.02) | (0.02) | (0.02) |
| *Household covariates* | | | |
| Urban location | -0.11 *** | -0.11 *** | -0.08 *** |
| | (0.02) | (0.02) | (0.02) |
| Is a farm | -0.23 *** | -0.23 *** | -0.55 *** |
| | (0.01) | (0.01) | (0.01) |
| Region (omitted: Middle Atlantic) | | | |
| New England | -0.10 *** | -0.10 *** | -0.27 *** |
| | (0.02) | (0.02) | (0.02) |
| East North Central | 0.29 *** | 0.29 *** | 0.21 ** |
| | (0.02) | (0.02) | (0.02) |
| South Atlantic | -0.01 | -0.01 | -0.13 *** |
| | (0.02) | (0.02) | (0.02) |
| East South Central | 0.28 *** | 0.28 *** | 0.11 *** |
| | (0.02) | (0.02) | (0.02) |
| West | -0.55 *** | -0.55 * | 0.14 *** |
| | (0.02) | (0.02) | (0.03) |
| *County-level covariates* | | | |
| % households in urban area | -- | -- | 0.004 *** |
| | | | (0.00) |
| % farming households | -- | -- | 0.014 *** |
| | | | (0.00) |
| Sex ratio | -- | -- | -1.311 *** |
| | | | (0.05) |
| % deaf with deaf family member in household | -- | -- | <0.01 |
| | | | (0.00) |
| Number deaf in county per 1,000 residents | -- | -- | -0.05 ** |
| | | | (0.02) |
| Constant | -4.574 | -4.573 | -3.82 |

Data come from the 1850 full census

Sample includes males ages 20-40; contains all deaf and random 5% of hearing individuals

* $p$ <.05; ** $p$ <.01; *** $p$ <.001; standard errors in parentheses

Figure 1. Deaf enclave locations

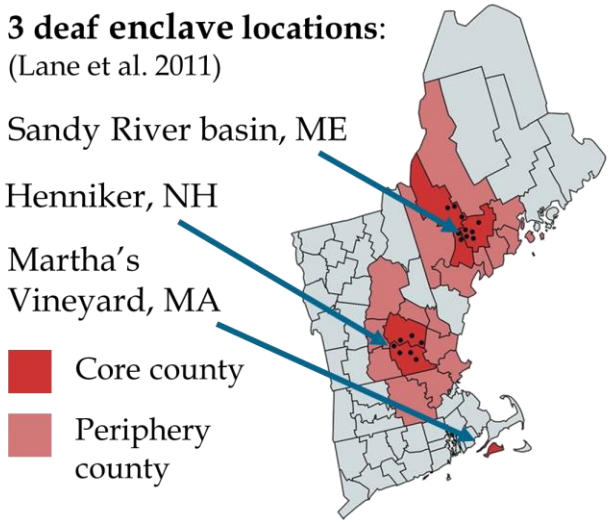
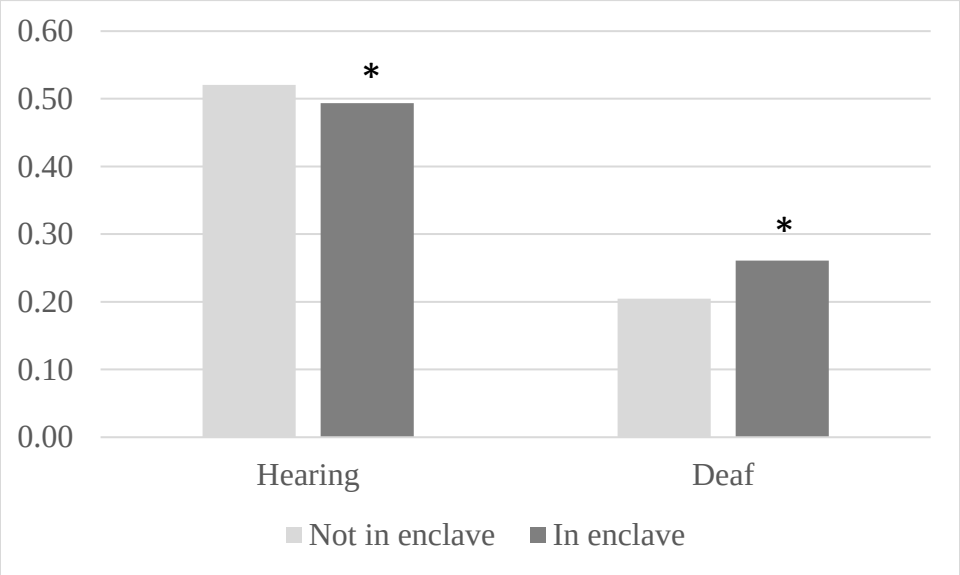



Figure 2. Predicted likelihood of marrying for deaf & hearing individuals by enclave residence




* statistically significant difference from peers in non-enclave locations ($p$<.05)