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RACIAL AND ETHNIC DISPARITIES IN TIME TO CURE OF INCONTINENCE IN OLDER ADULTS AFTER ADMISSION TO A NURSING HOME

Hypothesis / aims of study
The aim of this study was to assess whether there were racial or ethnic disparities in the time to cure of incontinence among older adults admitted to a nursing home.

Study design, materials and methods
The study had a prospective cohort design. The following datasets of a national chain of proprietary nursing homes were analyzed: 1) the Minimum Dataset (MDS) that includes demographic and health assessment data of individual residents and 2) Online Survey, Certification, and Reporting (OSCAR) records containing measures of nursing home staffing, quality of care, and the care environment (both from years 2000-2002) as well as 3) 2000 US Census data providing sociodemographic and socioeconomic measures of the tract in which each NH is located.

All elderly (aged 65 years or more) admitted to a nursing home with incontinence were identified. Incontinence was defined as a report of urinary (UI), fecal (FI), or dual (both urinary and fecal incontinence (DI)) on the first full (admission) MDS record (items H1a and H1b). Cure of incontinence was defined as an MDS record after the admission record that reported the resident as being continent. MDS records were followed forward in time until the first record was found that showed a cure, or censoring occurred due to the end of available records or the study period. Factors thought to predict time to cure of incontinence were identified in each dataset based on the literature and clinical expertise. Because multiple MDS or OSCAR items can correspond to the same factor, published scales of item composites exhibiting sound psychometric properties were used as predictors whenever possible.

Predictors of time to incontinence cure from the MDS were analyzed using Cox proportional hazards regression for White residents. The Peters-Belson method was used to assess racial or ethnic disparities. In this method, β-coefficients from the model for Whites were applied to Blacks, Asians, Hispanics, and American Indians separately. This resulted in a distribution of estimates of the *expected* time to cure of incontinence of each minority group had they been White. This distribution was then compared to the *actual/observed* time to incontinence cure of the minority group using a one sample log-rank test. The Cox regression and Peters-Belson method were rerun with the inclusion of MDS, OSCAR, and Census predictors. Potential nursing home effects were controlled by insuring that homes included residents of each racial/ethnic minority when modeled with Whites in their respective analysis.

Results
Residents with incontinence at the time of their nursing home admission (n=39,887) were aged 83(8) years (mean(SD), 65% female, 83% White, 12% Black, 2% Hispanic, 2.5% Asian, 0.5% American Indians and in 444 NHs in 27 states. Overall 21% of residents were cured of incontinence after nursing home admission.

There was a significant disparity in time to cure of incontinence for Black (p=.02) and Hispanic (p<.001) residents relative to Whites. There were no significant differences in time to incontinence cure for other minority groups of nursing home residents (p>.05). Table 1 shows example results: the observed/actual proportion proportion of Hispanics that were still not cured of incontinence had they been White at selected time points after nursing home admission was more than the expected proportion of Hispanics that were still not cured. The observed proportion of White residents that were still not cured is also reported.

Figure 1 shows results for Hispanics over the entire followup period. The y axis = proportion of Hispanics still not cured of incontinence; x axis = days after nursing home admission. The observed proportion of Hispanics still not cured of incontinence after admission (shown by the middle solid line) is higher than the proportion that was expected to still not be cured had they been White (lowest solid line). The two dashed lines show the 95% confidence interval (CI) around the observed proportion still not cured of incontinence.]

Table 1. Proportion of older Hispanics still not cured of incontinence at times after NH admission

Time after NH admission	Expected proportion of Hispanics still not cured of incontinence	Observed proportion of Hispanics still not cured of incontinence	Observed proportion of Whites still not cured of incontinence
3 mos.	.86	.89	.80
6 mos.	.82	.86	.75
12 mos.	.77	.82	.69

*NH=nursing home

Figure 1. Model of observed vs. expected proportion of Hispanics not cured of incontinence after NH admission
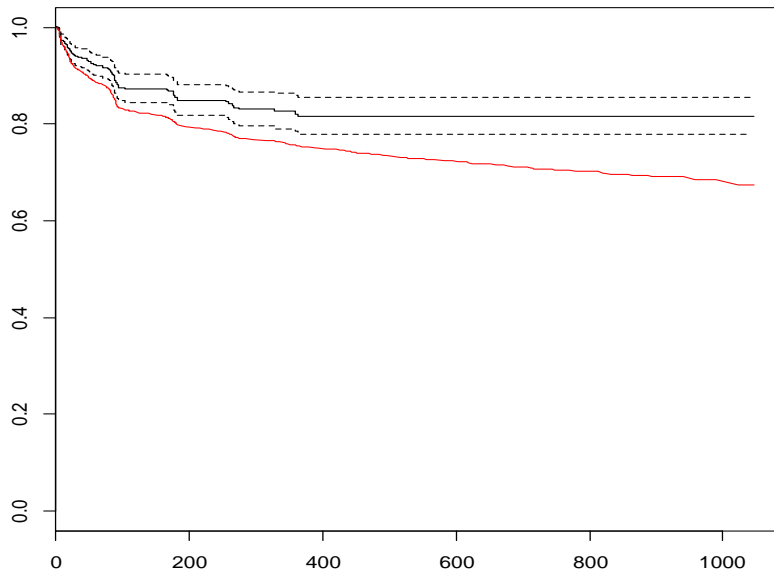
There were several common factors at the individual resident level that significantly predicted incontinence cure in models involving Whites and Blacks (B) and those involving Whites and Hispanics (H): fewer deficits in activities of daily living (HR(95% CI) for B=.96(.95-.96), for H=.96(.95-.96)), better cognitive functioning (MDS-COGs scale) (B=.84(.83-.85), H=.85(.83-.86)), fewer comorbidities (Charlson index) (B=.98(.96-.99), H=.97(.94-.99)), and not having FI or DI (B=.61(.57-.65), H=.64(.58-.70)). Younger age was a significant predictor for incontinence cure in models involving Whites and Blacks (.99(.989-.997)). Significant nursing home/community level predictors for incontinence cure in models involving Whites and Blacks were a higher percentage of admissions who were White (1.005(1.002-1.007)) and a lower percentage of residents receiving Medicaid (.996(.995-.998). For models involving Whites and Hispanics, significant nursing home/community level predictors were a lower percentage of residents receiving Medicaid (.998(.996-.999) and a lower percentage of the community below poverty level (.99(.98-.99) or in an urban area (.73(.65-.82)).

Interpretation of results
Health disparities in cure of incontinence were found for older Black and Hispanic individuals admitted to nursing homes, controlling for resident health and nursing home characteristics. Black and Hispanic residents were cured later and less often than if they had been White. For those not being cured, several resident level predictors seem potentially modifiable including improving residents' physical function and overall health status. Factors other than resident characteristics influence cure of incontinence including Medicaid payment to nursing homes and poverty of the surrounding community.

Concluding message
Although there are reports of racial and ethnic differences in the prevalence of incontinence among nursing home residents,[1-3] little is known about disparities in the cure of incontinence after admission. Older Black and Hispanic residents are at risk for not being cured of incontinence and for being cured later after nursing home admission. Findings suggest the need for interventions to treat incontinence early after admission and to improve residents' function. Interventions to better treat incontinence in cognitively impaired residents seem needed. Policy implications are to increase payments to nursing homes with high percentages of minority admissions and admissions who are incontinent and increase availability of healthcare for incontinence prevention among elderly in poor communities prior to nursing home admission.

References
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Disclosures