

RACIAL AND ETHNIC DISPARITIES IN TIME TO DEVELOPING URINARY AND FECAL (DOUBLE) INCONTINENCE IN NURSING HOME OLDER ADULTS

Hypothesis / aims of study

1. Determine the incidence of urinary and fecal (double) incontinence in older adults (aged 65 years or more) after admission to a nursing home in the United States (U.S.) by race (White, Black, and Asian) and Hispanic ethnicity.
2. Measure the time to development of double incontinence in older adults after admission to a U.S. nursing home
3. Assess racial/ethnic disparities in the time to development of double incontinence in older adults after admission to a U.S. nursing home

We hypothesized that there are racial and ethnic disparities in the development of double incontinence that are influenced by multiple factors at the individual resident, nursing home, and community levels.

Study design, materials and methods

Three large datasets from years 2000-2002 of a national chain of proprietary nursing homes were analyzed: 1) the Minimum Dataset (MDS) that includes demographic and comprehensive health assessment data of individual residents, 2) the Online Survey, Certification, and Reporting (OSCAR) files containing measures of nursing home staffing, quality of care, and the care environment, and 3) U.S. Census data providing socio-demographic and socioeconomic (SES) measures of the census tract of the community in which each NH is located.

This study has a prospective cohort design. We identified a cohort of older adults admitted to a nursing home who were free of any incontinence. Double incontinence was defined as having urinary and fecal incontinence on the same MDS record (items H1a and H1b). MDS records were followed forward in time until an episode of double incontinence was found or available records or the study period ended.

Variables thought to influence time to double incontinence were identified in each dataset using the literature and clinical expertise. Because multiple items on the MDS correspond to same variable, published scales of composites of items with good psychometric properties were used whenever possible.

A Cox proportional hazards regression was first used to analyze risk factors of individual residents from the MDS for double incontinence in Whites only. To assess disparities using individual level factors, the Peters-Belson method was used. In this method, estimates of coefficients from the Cox model for Whites are applied to the same risk factors in each minority group (Blacks, Asians, and Hispanics) separately. This results in a distribution of estimates of the *expected* time to double incontinence of each minority group as if it were White. This distribution was then compared to the *actual* time to double incontinence of the minority group using the one sample log-rank test. The Cox and Peters-Belson models were then rerun including factors at the nursing home (OSCAR) and community (Census) level.

Results

Residents free of any incontinence at admission ($n = 44,516$) were 68% female, aged = 81 (7) years (mean (SD)), 91% White not Hispanic, 6% Black not Hispanic, 1% Asian, and 1% Hispanic. 37% had less than a high school education. They were located in one of 452 nursing homes in 29 U.S. states. The incidence of double incontinence after nursing home admission was 13% of White residents, 22% of Blacks, 12% of Asians, and 14% of Hispanics. The time to development of double incontinence (median number of days) after nursing home admission of each group of residents was as follows: Whites (217 days) Blacks (127 days), Asians (158 days), and Hispanics (239 days).

Risk factors at the individual resident level significantly associated with development of double incontinence ($p < .05$) were: deficits in activities of daily living and communication, use of restraints, greater number of psychotropic medications, increased age, female sex, and more comorbidities (per the Charlson index). Significant risk factors in the nursing home and community were: a greater percentage of residents in the nursing home who were Black, a greater percentage of residents in the nursing home who had incontinence, and a greater fraction of the community population in an urban area. More Blacks developed double incontinence and developed it sooner than expected ($p < .001$). Figure 1 shows that at 6, 12, and 24 months after admission, 0.81, 0.69, and 0.48 Black residents were expected to be free of double incontinence compared to 0.73, 0.58, and 0.38 who were actually free, respectively. Time to double incontinence in Hispanics and Asians were not different than expected ($p = .34$).

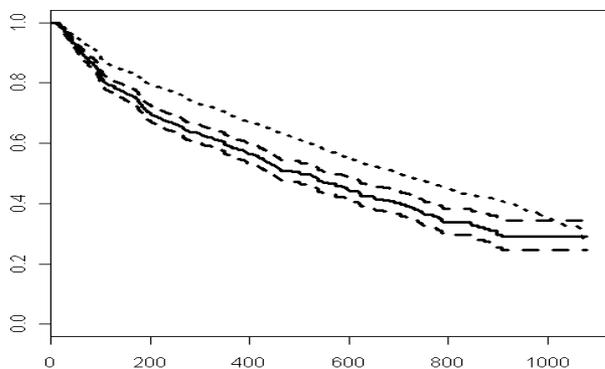


Figure 1. Expected versus actual proportion of Black older adults free from double incontinence after nursing home admission. y axis = proportion of residents free from double incontinence; x axis = days after nursing home admission. The proportion of Blacks who remained free of double incontinence at each time after admission (represented by the solid line) is lower than the proportion expected to remain free of double incontinence (uppermost dotted line). Curves are computed by applying the results of the Cox regression on Whites to Black residents. The two dashed lines around the solid line are the 95% confidence interval for the actual proportion of Blacks without double incontinence.

Interpretation of results

Risk factors for time to develop double incontinence in White nursing home residents tested significant at the individual, nursing home, and community levels, supporting our hypothesis. Some risks are potentially modifiable, for example, deficits in function and communication, use of restraints, number of psychotropic medications, the percentage of incontinent residents in the nursing home, the racial mix of residents, and location of nursing homes. Findings show that older Black nursing home residents are at a greater risk than expected to develop double incontinence given their characteristics, indicating a health disparity.

Concluding message

Reducing health disparities offers a promising opportunity to improve health outcomes of disadvantaged minority individuals [1]. Current studies of racial-ethnic disparities in the epidemiology and management of incontinence are based on individual resident data only [2]. Our findings show potentially modifiable factors that can be targeted at multiple levels to reduce disparities in double incontinence and improve outcomes of older nursing home residents.

References

1. House JS, Lantz PM, Herd P. Continuity and change in the social stratification of aging and health over the life course: evidence from a nationally representative longitudinal study from 1986 to 2001/2002 (Americans' Changing Lives Study). *J Gerontol B Psychol Sci Soc Sci.* Oct 2005;60 Spec No 2:15-26.
2. Baumgarten M, Margolis D, van Doorn C, et al. Black/White differences in pressure ulcer incidence in nursing home residents. *Journal of the American Geriatrics Society.* Aug 2004;52(8):1293-1298.

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| Was this study approved by an ethics committee? | Yes |
| Specify Name of Ethics Committee | University of Minnesota Institutional Review Board approved the study under the exempt status because existing data are analyzed and all data are without personal identifiers |
| Was the Declaration of Helsinki followed? | Yes |
| Was informed consent obtained from the patients? | No |