Race Disparities in Disability Trajectories among Older Americans: Cohort Effects and Disease Profiles

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Background:

The past two decades have witnessed an overall decline in disability among older adults in the United States. However, these trends have not been universally beneficial across racial and socioeconomic groups. A substantial amount of demographic research has highlighted racial disparities in later life disability, disability transitions and trajectories over time, and active life expectancy. Recent research (Schoeni, Freedman, and Martin 2008) suggests that a narrowing of the disparity between Non-Hispanic Whites and other racial/ethnic groups may have occurred over the past few decades. However, this research treats all race and ethnic minorities as one group, without splitting out the most disadvantaged (i.e. African Americans). In addition, much of the research uses a dichotomous measure of disablement without taking severity into account.

Other research shows race disparities in health in the U.S have been persistent over the past few decades, remaining pervasive across a wide array of health outcomes. Much of the research on this topic focuses on the gap between African American and White individuals, since these groups make up the majority of the population and disparities between them are some of the largest in this country (Lynch 2008). African American individuals are at higher risk of morbidity, disability, and mortality compared to Whites almost consistently across the life course therefore enjoying both fewer years overall and fewer years in good health compared to their White counterparts. (Ferraro and Farmer 1997; Hayward and Heron 1999; Kitagawa and Hauser 1973; Manton, Patrick and Johnson 1987).

In this paper, we reexamine long term disability trajectories in three five-year cohorts of older adults to establish whether declining trends in disability are observed longitudinally among true cohorts. Extending the work of Taylor and Lynch (2009), we split our sample by race (White and African American) to determine whether any gains in functioning among younger cohorts translate across races. Finally, we estimate disease profiles for the differential trajectories to examine whether certain conditions result in more severe disability trajectories for African Americans and whether comorbidity occurs across later life differentially across race.

Research Design:

We use the 1984-2004 National Long Term Care Survey (NLTCS) and linked Medicare/Vital Statistics records. The study is nationally representative of both community dwelling and institutional dwelling older adults at each wave conducted in 1982, 1984, 1989, 1994, and 1999, and 2004. Replenishment at each wave has ensured representativeness across time. For our analysis, we examine three birth cohorts: those aged 65-69 in (1) 1984, (2) 1989, and (3) 1994 (i.e. the 1915-1919, 1920-1924, and the 1925-1929 birth cohorts). Of the 18,491 individuals originally sampled who were 65-69 in each of these three waves, 16,876 cases comprise the analytic sample; 9% are missing. Missingness was handled in the analyses using a full information maximum likelihood

(FIML) estimator and all analyses were performed using *Latent Gold 4.1* Software (Vermut & Magidson, 2004).

In measuring disability, we use a six item ADL index (self or proxy report) asking the respondent whether they had any problem eating, getting in and out of bed, walking around inside, dressing, bathing, and getting to the bathroom or using the toilet without help. For chronic condition measures, we used the Medicare files linked to the NLTCS (1982-2004). Unlike many surveys, the NLTCS boasts 100% linkage, with complete files on all individuals. Records were collected for inpatient and outpatient procedures, hospice, home health agencies, skilled nursing facilities, and physicians (if individuals were enrolled in Part B). Age (in years), gender, and cohort are also included in analyses.

In this study we use latent class analysis (LCA) to examine differential disability trajectories for up to 20 years of individual's lives. LCA, developed by Lazarsfeld and others (Lazarsfeld & Henry, 1968; Nagin & Land, 1993), offers a non-parametric complement to growth modeling by assuming that deviations from one average trajectory may be substantively important and may not simply reflect measurement error or other random deviations from a linear or curvilinear pattern of increasing disability leading to death.

Results:

Graphic representation of the best fitting classes of disability experience for Whites and African Americans is shown in Figure 1. Each subsample yielded a 3 class model comprised of a nondisabled trajectory, a trajectory of accumulating disability over time, and a nonstable moderate disability (~2 ADL's) trajectory over time. Whites had a greater proportion represented by the nondisabled experience (64% vs. 54%) and fewer in the moderate disability trajectory (10% vs. 17%). Although the moderate disability trajectory shows support for recovery among this trajectory, sensitivity analyses have shown that "reductions" in disability are not significant and are most likely the result of selective mortality at the latest ages.

In examining cohort effects, we replicate the findings of Taylor and Lynch (2009) finding significant declines in younger cohorts using ADL's only rather than combined ADL/IADL's. Among Whites, younger cohorts did not experience the nondisabled trajectory more than their older counterparts. However, they did experience an accumulating trajectory (where the threshold of 1 ADL was only crossed at Wave 4) more often and were less likely to experience a nonstable moderate trajectory. There were no significant cohort differences among African Americans for any class trajectory.

Table 2 shows estimated disease profiles for the differential trajectories. For both Whites and African Americans, a nondisabled trajectory was characterized primarily by sensory conditions, consistent with previous research. Among African Americans, this trajectory was also characterized by hypertension. Among Whites, an accumulating trajectory was characterized by arthritis, heart attack, and hip fracture but it was only characterized by arthritis for African Americans net of other conditions and controls. Primarily cerebrovascular conditions (hypertension, heart attack, stroke) characterized the moderate nonstable trajectory for African Americans, whereas a number of disabling conditions (hip fracture, stroke, respiratory problems, diabetes) characterized this experience for Whites.

Figure 1a: Differential Disability Trajectories: Whites

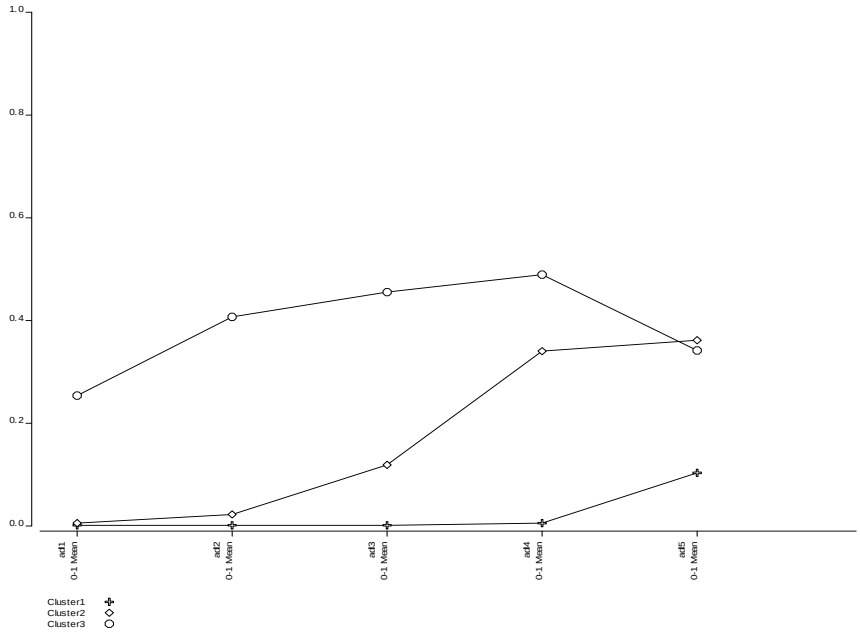

Figure 1a: Differential Disability Trajectories: African Americans

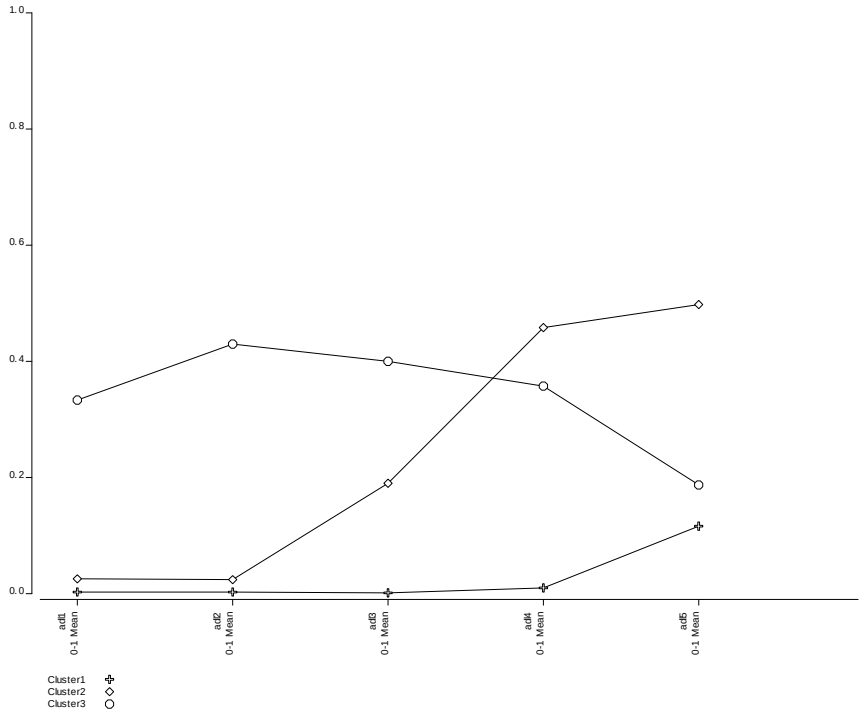

Table 2a: Cohort and Chronic Disease Profiles Effects for Disability Trajectories: Whites

Cohorts Age 65-69		**N=15,679**				
Nested Models						
Classes	Nondisabled	Accumulating	Moderate	Nondisabled	Accumulating	Moderate
Sample %	63.85%	25.25%	10.90%	62.46%	25.47%	12.07%
Covariates						
Age	0.88***	1.02	1.11***	0.88***	1.02	1.11***
1920-24 cohort	1.01	1.08***	0.91***	0.98	1.08***	0.95
1925-29 cohort	0.99	1.12***	0.90***	0.92***	1.11***	0.97
Female	---	---	---	0.84***	1.07***	1.11***
Arthritis	---	---	---	0.95	1.21***	0.87***
Diabetes	---	---	---	0.82***	1.02	1.19***
Hearing Probs.	---	---	---	1.21***	1.02	0.81***
Heart attack	---	---	---	0.98	1.04	0.98
Hip Fracture	---	---	---	0.70***	1.12***	1.28***
Hypertension	---	---	---	1.028	1.16***	0.84***
Resp. Problems	---	---	---	0.88***	1.05	1.08***
Stroke	---	---	---	0.80***	1.08	1.16***
Vision Probs.	---	---	---	1.33***	1.01	0.75***
L^2	8371.39			33560.90		
BIC	-142625.28			-117242.58		

Table 2b: Cohort and Chronic Disease Profiles Effects for Disability Trajectories: African Americans

Cohorts Age 65-69		**N=1,196**				
Nested Models						
Classes	Nondisabled	Accumulating	Moderate	Nondisabled	Accumulating	Moderate
Sample %	54.32%	27.42%	18.25%	52.98%	28.33%	18.69%
Covariates						
Age	0.88***	1.06	1.08	0.85***	1.06	1.10
1920-24 cohort	1.04	1.00	0.96	1.05	0.99	0.96
1925-29 cohort	1.13	0.81	1.10	1.09	0.76	1.21
Female	---	---	---	0.91	1.04	1.05
Arthritis	---	---	---	0.77***	1.50***	0.87
Diabetes	---	---	---	0.79***	1.08	1.17
Hearing Probs.	---	---	---	1.25***	0.99	0.81
Heart attack	---	---	---	0.82***	1.02	1.21***
Hip Fracture	---	---	---	0.84	1.03	1.15
Hypertension	---	---	---	1.53***	0.88	0.74***
Resp. Problems	---	---	---	0.88	1.12	1.02
Stroke	---	---	---	0.72***	0.97	1.43***
Vision Probs.	---	---	---	1.23***	1.05	0.78***
L^2	1944.38			3844.32		
BIC	-6191.19			-4149.52		