Summary

Examining factors associated with "healthy aging" is important as the population ages dramatically over the next few decades in the United States and most of the other industrialized countries. One crucial aspect of healthy aging is being free from any disabilities in Instrumental Activities of Daily Living (IADL). The main aim of this study is to examine what factors are associated with retaining IADL abilities over the long period of time among the elderly. Past studies have primarily examined changes in IADL abilities between discrete time points, e.g., using logistic regression models to see the likelihood of losing IADL ability between two or several time points. Alternatively, past studies have used a survival time approach where the outcome is the event of losing IADL abilities. Both approaches have some shortcomings; it is hard to describe the factors associated with sequence of changes or patterns over several time points (lose ability, regain and lose again) in the former approach, and the latter approach is forced to examine the first time changes in IADL abilities during the follow-up period (e.g., event is losing one or more IADL ability). In this study, we will use Latent Trajectory Analysis implemented in SAS TRAJ procedure [1] to estimate the latent groups which differ in longitudinal trajectories of total numbers of disabilities in Instrumental Activities of Daily Living (IADL), among originally community-dwelling elderly, over 12 years of follow-up. Briefly, this procedure estimates two models simultaneously by using Maximum Likelihood Estimation approach; one estimates the probability of being in each homogenous latent group identification for each subject based on the time-independent covariates (characteristics of the subject), and another estimates the trajectory (slope) of each homogeneous group over time.

Study design and sample

The Monongahela Valley Independent Elders Survey (MoVIES project) was a prospective epidemiological study of dementia beginning in 1989. Located in a mostly rural area of Southwestern Pennsylvania, formerly home to the steel industry, the population is largely blue-collar and of mostly European descent, with low rates of in-and out-migration. The study cohort was an age-stratified random sample of 1422 persons, and 259 volunteers from the same area, for a total sample size of 1681. The cohort was assessed at study entry and re-assessed on average every two years in a series of data collection "waves." Entry criteria, further details of sampling, recruitment, and screening have been reported previously. [2-5] Most of the attrition between successive waves was due to death (9%-14%) and less for other reasons such as dropout and relocation (average 2.8%).

At each wave, after providing written informed consent, subjects underwent an in-home interview including cognitive screening and self-report data on demographic characteristics and IADL abilities, among other variables. As several of the variables of interest here, including IADL ability, were measured at each wave starting with Wave 2, this study is based on data from Waves 2 through 6 from which we have complete data including date of death confirmed by death certificates. Approval was received annually from the University of Pittsburgh Institutional Review Board.

IADL measurement

IADL ability was assessed using the Older Americans Resources and Services (OARS) questionnaire [6], which asks about ability to perform 7 activities: using the

telephone, getting to places out of walking distance, shopping for groceries (assuming subject has transportation), preparing meals, doing housework, taking medications, and handling money. Information was obtained by self-report from study participants except when another informant was considered more reliable. Participants were regarded as having disability on each IADL item if they were reported as partly (i.e. requiring help with) or completely unable to perform the task independently.

We calculated a total number of IADL ability for which subjects are independently able to do. This score ranges from 0 (disabled in all abilities) to 7 (can do all tasks independently).

Preliminary results

Preliminary analysis showed that there are three latent groups explaining the long-term IADL trajectory based on the Bayesian Information Criterion (BIC); a group which does not show any declines in IADL abilities over the years (the "no decline" group), another group which shows moderate decline in IADL abilities (the "mild decline" group), and finally the group which shows sharp decline in IADL abilities (the "sharp decline" group). The magnitude of changes in total IADL score over time for each latent group and the associated factors will be presented at the time of the PAA meeting.

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