

Predictors of grip strength development in older adults

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CONCLUSIONS

- A clear gender difference in the type of predictors influencing grip strength performance and development across the life span was found. Significant predictors for women were age and depression. For men, age, marital status, self-reported health, perceived stress, and chronic diseases were of importance. These factors were also of more or less importance during certain periods of the lifespan (e.g. in young adulthood, in early midlife, in late midlife or in old age).

- The predictors found to be significant in this study can in some cases be considered as proxies for other more direct causal predictors. It is of importance to study and understand the processes leading to different types of age trajectories in grip strength development.

INTRODUCTION

Loss of muscle strength in older persons may lead to several negative outcomes such as disability, limited daily living activities, and falls resulting in injuries. Hence, muscle strength is an important public health issue. Grip strength is often used as a marker, not only for muscle strength, but also for biological vitality, since it is a cost-effective measure sensitive to age-related changes and to changes in biological functioning. The mechanisms behind negative development in grip strength are still not well understood, although some risk factors have been suggested, such as low physical activity, and morbidity. The present longitudinal study examined how demographic, health-related, and life-style related factors influenced grip strength development in participants 40-88 years of age at baseline.

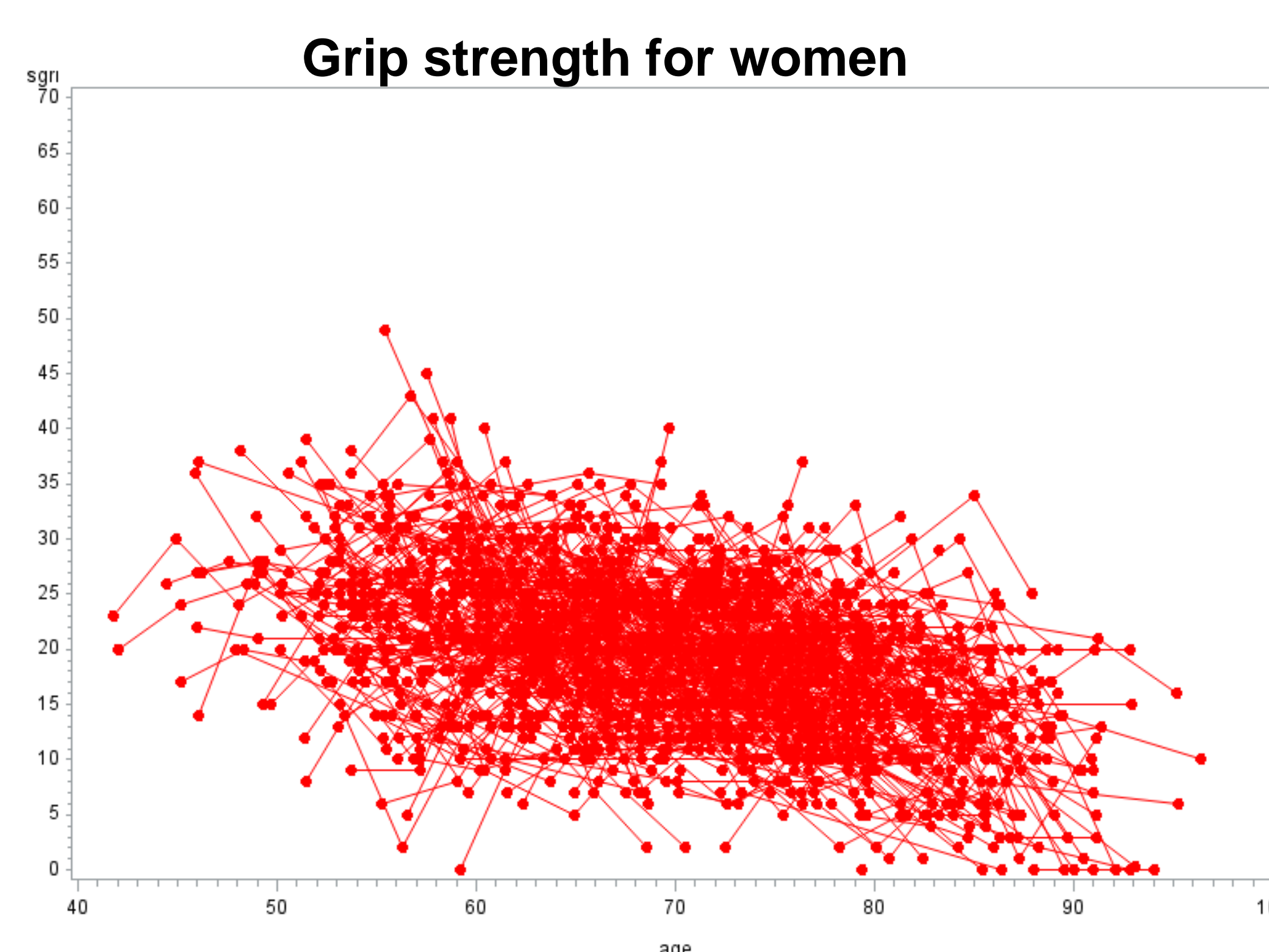


Figure 1. Longitudinal trajectories for women. Each line represents one person.

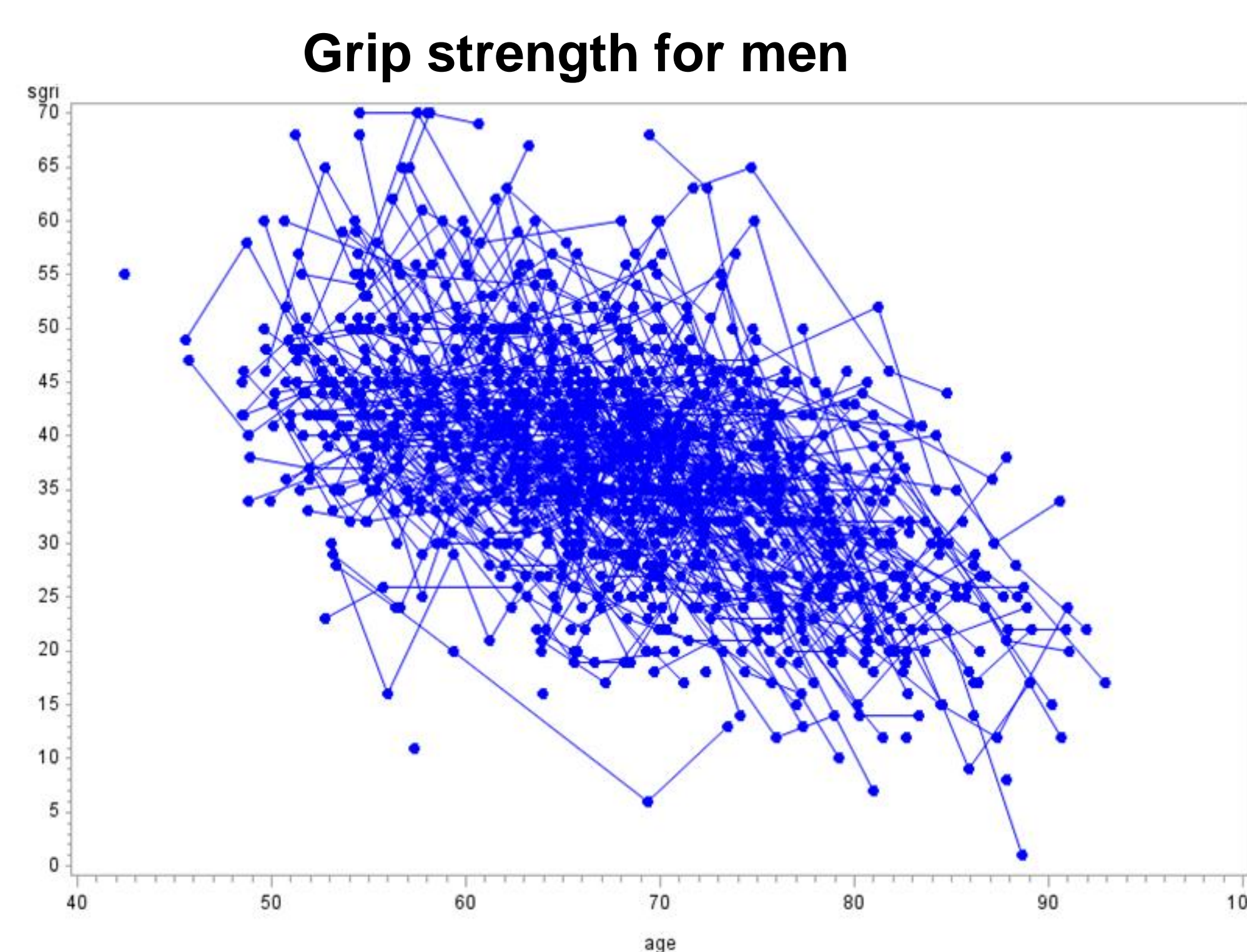


Figure 2. Longitudinal trajectories for men. Each line represents one person.



Characteristics of the participants in the final samples (at baseline)

	Women	Men	Total
n	413	312	725
Age (M)	58.3	56.8	57.7
Married	72%	82%	76%
Gymnasium or higher	40%	45%	42%
Systolic BP (M)	152	152	152
BMI (M)	24.9	25.4	25.1
Cardio-vascular disorder	23%	22%	23%

RESULTS

Women

- Mean level:** Preliminary findings indicate that it was negative for grip strength performance to feel depressed in early midlife (35-49 years of age).
- Mean slope:** Higher age resulted in poorer grip strength performance.

Men

- Mean level:** Preliminary findings indicate that marital status and self reported health in early midlife (35-49 years of age), perceived stress in old age (66-84 years of age) and the height of the participant were significant predictors for grip strength performance in men.
- Mean slope:** Besides higher age that resulted in poorer grip strength performance, other factors influencing the age trajectories were marital status in midlife and old age, perceived stress in late midlife (50-65 years of age) and having chronic disease in old age.

METHOD

The participants (n = 851) were recruited from the Swedish Adoption/Twin Study of Aging (SATSA). SATSA provides a unique opportunity to study the longitudinal development of grip strength with seven measurement points over 22 years. With access to data from questionnaires (from the Swedish Twin Registry) collected up to twenty years before the assessment of grip strength, we were able to study which factors in young adulthood and midlife that predict the age trajectories. The predictors studied were age, education, socio-economic status, marital status, weight, height, self-reported health, depression, stress, blood pressure, morbidity, smoking, exercise, and physical activity at work. Age trajectories for grip strength were analyzed separately for men and women. Latent growth modeling was used for the longitudinal analyses.

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