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## Demographics, Phenotypic Health Characteristics and Genetic Analysis of Centenarians in China

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### Highlights

- Centenarian studies in China have made significant progress.
- CLHLS has world largest sample of centenarians, other oldest-old and young-old groups.
- CLHLS reveals major gender and rural/urban disparities in health of centenarians.
- CLHLS reveals that good resilience and optimism are keys to exceptional longevity.
- Novel findings on effects of genotypes and GxE interactions on healthy longevity.

### Abstract

After a brief introduction to the background, significance and unique features of the centenarian population in China, we describe the Chinese Longitudinal Healthy Longevity Study (CLHLS), which is the world's largest study of centenarians, nonagenarians, octogenarians, and compatible young-old aged 65-79. Based on the CLHLS data and other relevant studies, we summarize demographic and socioeconomic characteristics as well as self-reported and objectively-tested health indicators of centenarians in China, with an emphasis on gender differences and rural/urban disparities. We then compare five-year-age-specific trajectories of physical and cognitive functions, self-reported health, and life satisfactions from ages 65-69 to 100+, concluding that good psychological resilience and optimism are keys to the exceptional longevity enjoyed by centenarians. We discuss recent findings of novel loci and pathways that are significantly associated with longevity based on the genome-wide association study (GWAS) of the CLHLS centenarian sample, which is 2.7 times as large as prior GWAS of longevity. We also highlight colleagues' and our own

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