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Gender Differences Prominent in Linking Anxiety to Long-Term Mortality Among the Elderly*

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Purpose: Previous findings on anxiety predicting mortality were inconsistent. Limitations of previous studies include single anxiety assessment, short follow-ups, and disregard for gender difference. Few studies examined the change in anxiety over time. To address these limitations, we explored gender differences in the association of changes of anxiety and long-term mortality among community-dwelling elderly.

Methods: At baseline, 1,000 people (M age = 79.8 years; 65.8% women) had psychosocial assessment, including an anxiety scale from the Positive and Negative Affect Scale. They were then assessed annually up to 12 years. Trajectories of changes in

anxiety were modeled by a joint modeling method of repeated measures and survival data, Cox regression, and individual growth curve analysis to predict mortality at follow-up. We controlled for demographics, health behavior, health problems, functional status, and cognitive impairment.

Results: Total mortality rate was 71.2% at 15-year follow-up. In the whole sample, both lower baseline anxiety and increasing anxiety over time were predictive of higher mortality. For men, baseline anxiety was not predictive of anxiety, but increases in anxiety scores over time were associated with 45% higher risks of mortality (HR = 1.45, $P < .001$) after adjusting for covariates. For women, lower baseline anxiety was predictive of higher mortality (HR = .91, $P < .001$); in contrast, the change in anxiety scores over time was not a significant predictor of mortality.

Conclusion: The association between anxiety and mortality may depend on gender. Anxiety may be protective for women, potentially through increased health care utilization. In contrast, increasing anxiety over time is more detrimental to men. More research is needed to understand the mechanisms.

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