

Psychological status predicts long-term Cerebrovascular Mortality: Findings from a prospective analysis on Aging in a Cohort of Community Elderly in North Tuscany

Olivia Curzio¹, Emilia Bernacca,² Serena Ciandri,¹ Bruno Bianchi,³ Pasquale Pepe,⁴ Giuseppe Rossi^{1,5}

Keywords: Elderly; Cohort studies; Psychological distress; Depression; Psychology; Cardiovascular system; Mortality; Epidemiology

Abstract: Self-reported psychological status may have an impact on total and cardiovascular mortality in the elderly. The value of treating psychological difficulties using a range of modalities is an area of considerable interest and intense debate in clinical and research work (Blazer, 2001; Hamer, 2008; Hamer, 2012; Von Kanel, 2008; Carney, 2002).

Overall there is strong evidence that self-perceived health status predicts mortality in the elderly (Mossey, 1982; Wolinsky, 1992; Idler, 1997; Cesari, 2008). In a meta-analysis De Salvo and colleagues found a relationship between worse General Self Rated Health (GSRH) and an increased risk of death (De Salvo, 2006). A study by Idler and Kasl (1995) similarly found that older adults who rated their health as poor were two and a half times as likely to experience a decline in functional ability compared to those with excellent self-rated health. In particular, the dimension of psychological distress has been associated with an increased risk of overall and disease-specific mortality risk in community populations (Carney, 2002, Rasul, 2004). Psychological distress is a risk factor for stroke in humans and worsens the behavioral and neurological outcomes; it can manifest in multiple ways and at different levels of severity; it is a psychological discomfort linked to both everyday stressors and to several other sources of distress (Gradus, 2015) such as bereavement (Ghesquiere, 2014); loneliness (Ng, 2015) is a common subjective complaint among older people and is closely linked to objective social isolation. Objective measures of loneliness have been suggested to be predictive of subsequent functional decline and increased mortality in old age (Holwerda, 2012; Cacioppo, 2002; Kandler, 2007; Routasalo, 2006; Luo, 2012). At the end of the 1980s, the Regional Health Authority of the Italian administrative region of Tuscany launched a project aimed at improving nursing facilities' assessment, care planning and quality of life in elderly population. The project included the assessment of elderly persons living in Massa and Carrara using a multidimensional geriatric assessment screening tool. When developing the geriatric assessment screening tool, particular importance was placed on ease of use, creating a very user-friendly instrument. The tool can be used as a good source of information by managers and administrators, enabling them to easily identify in a systematic way areas that need change due to poor outcomes and explore potential problems in ways of delivering care, in order to set up corrective quality improvement programs (Curzio, 2017).

The aim of the present study was to prospectively assess the association between self-reported psychological status and long-term total and cardiovascular (CVD) mortality in a population-based cohort using data

from North Tuscany.

A cohort of 2131 non-institutionalized elderly people (aged 70 years or older) living in North Tuscany (Italy), was assessed with a short self-administered questionnaire investigating psychological, cognitive, functional, and health status, living arrangements and social support, and then followed for 9 years. Survival analysis was performed by the Cox proportional hazard model.

After adjusting for potential confounders, psychological status was a significant and strong predictor of total mortality (HR = 1.09; 95% C.I. = 1.02-1.17) and cardiovascular mortality (CVD) (HR = 1.13; 95% C.I. = 1.03-1.25). Moreover, psychological status was a predictor of cerebrovascular mortality (HR = 1.25; 95% C.I. = 1.09-1.44) but not of cardiac mortality (HR = 1.09; 95% C.I. = 0.87-1.35; $p = 0.4536$).

Self-reported psychological status appears to be an independent risk factor for CVD, particularly cerebrovascular disease, and may have an impact on the prevention of CVD mortality in the elderly. Addressing psychological distress and depression in older people by developing interventions that activate psychological health by means of community intervention programs may reduce the burden of morbidity and mortality among the elderly. However, the study has notable strengths, including the availability of clinically confirmed CVD deaths over a long period, the use of a friendly questionnaire and the analysis of a representative sample.

Such analyses await further study to improve sensitivity and specificity of symptom screening and clarify the potential benefits of better screening and treatment of depression in community-based older people. The interval between psychological distress and mortality has implications for the mechanism of this association over time and should be clarified, translating epidemiological research findings into larger-scale initiatives to improve the quality of life and care of seniors. Moreover, investigation of the relationship between social support and psychological distress should be considered in detail in future research. Little is known about the psychological risk factors for cerebrovascular disease. In this large cohort representative of the general population, we saw a specific association between psychological distress in the form of depressive symptoms and risk of death from cerebrovascular disease. The data suggest that our questionnaires could be of value in systematic screening aimed at improving the recognition of common mental disorders in order to decrease the risk of death from cardiovascular disease. Results offer several indications for further research. In particular, data from controlled trials that examine the effects of reducing distress on cardiovascular and cerebrovascular disease outcomes are needed to confirm and validate the results we have observed.

Olivia Curzio

¹ Institute of Clinical Physiology, National Research Council, Italy

² Geriatrics Department of Primary Health Care; Massa and Carrara Public Health Care System, Carrara, Italy

³ Department of Primary Health Care; Massa and Carrara Public Health Care System, Carrara, Italy

⁴ Agenzia Regionale di Sanità della Toscana, Florence, Italy

⁵ G. Monasterio Foundation, CNR-Tuscany Region, Pisa, Italy