Psychological distress as a risk factor for dementia death

Psychological Distress as a Risk Factor for Dementia Death[†]

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Acknowledgements: TCR is supported by Alzheimer Scotland and he is employed in the NHS by the Scottish Dementia Clinical Research Network, which is funded by the Chief Scientist Office (part of the Scottish Government Health Directorates). TCR and JMS are members of the Alzheimer Scotland Dementia Research Centre funded by Alzheimer Scotland. TCR, JMS and GDB are members of the University of Edinburgh Centre for Cognitive Ageing and Cognitive Epidemiology, part of the cross council Lifelong Health and Wellbeing Initiative (G0700704/84698). Funding from the BBSRC, EPSRC, ESRC, and MRC is gratefully acknowledged. GDB is a Wellcome Trust Fellow.

Total Word Count: 715

[†] Financial Disclosure: Nothing to disclose

TO THE EDITOR

Current estimates suggest that neuropsychiatric disorders account for 28% of the global burden of disease.[1] While depression and anxiety (commonly referred to as psychological distress) have been shown to be a consequence of dementia, the converse is less clear. The possibility that psychological distress might be a risk factor for dementia has major public health implications. However longitudinal studies—which are best placed to examine this relationship—have, with some exceptions,[2, 3] been small in scale (affecting study precision), excluded individuals under 65 years of age (limiting insights into the pre-older age origins of dementia), or have utilised clinical samples (reducing generalisability). Accordingly, we examined the role of psychological distress as a risk factor for and dementia death by pooling ten large, community-based cohort studies.

METHODS

Participants were recruited from the Health Survey for England[4], an annual general population-based cross-sectional study (with a longitudinal component) representative of household-dwelling individuals in England. Results from 1994–2004 were pooled. Participants gave informed consent; ethical approval was obtained from the London Research Ethics Council.

Psychological distress was measured during a household visit using the 12-item General Health Questionnaire (GHQ-12), a widely-utilized measure of psychological distress in population studies comprising items rating anxiety, depression, social dysfunction, and loss of confidence. Higher scores indicate greater distress. We employed a cut off score of ≥4 to denote psychological distress as validated against standardised psychiatric interviews.[5] Dementia was identified from death certification and coded according to the International Classification of Diseases (ICD) codes 290.0–290.4 and 294.9 (ICD-9) and F01, F03, F09 and G30 (ICD-10). Follow-up was until date of death or 1st January 2009—whichever came first.

We used Cox proportional hazards models to compute hazard ratios with accompanying 95% confidence intervals for GHQ-12 score in relation to dementia-related deaths. Study members scoring zero (no apparent distress) denoted the reference group. Models were adjusted for age, gender, occupational social class (OSC)[6], parental OSC, age upon leaving full-time education, current smoking (yes/no), alcohol consumption (units per week), and existing cardiovascular disease (CVD; yes/no) and diabetes (yes/no). Analyses were conducted using PASW statistics 18.0 and R 2.13.0.

RESULTS

The initial sample included 85,261 adults (in 1996 the GHQ-12 was not utilised). After removing individuals who declined linkage to mortality records (N= 9,325) and those with missing GHQ-12 data (N= 2,865) the analytic sample comprised 73,071 individuals (54.8% women) with a mean age of 55.9 years (SD 14.3, range 35–102). Data were missing for one or more variables in 21% (N= 15,355) of the sample. Individuals with missing data were more likely to be older, be female, belong to a manual OSC, leave school later, be a non-smoker, drink alcohol moderately and have CVD and diabetes.

Of the 10,170 deaths during follow-up, 455 had dementia coding. A higher GHQ-12 score was associated with increased risk of dementia death in an age-adjusted model (GHQ-12 score 1-3, HR= 1.44, 95% CI 1.17, 1.78; GHQ-12 score 4-12, HR= 1.74, 95% CI 1.36, 2.22; p (trend) < 0.001). Adding all remaining covariates (gender, OSC, parental OSC, age upon leaving full-time education, current smoking, alcohol consumption, and existing CVD and diabetes) led to some attenuation of effect but statistical significance at conventional levels was essentially retained (GHQ-12 score 1-3, HR= 1.27, 95% CI 1.00, 1.61; GHQ-12 score 4-12, HR= 1.56, 95% CI 1.17, 2.07; p (trend)=0.005). In figure 1 we relate seven categories of GHQ score to

dementia death in order to provide more detailed insight into the shape of the relationship. There was evidence of a dose-response effect (p [trend]= 0.001). Excluding individuals with any missing data (N= 57,716; 361 dementia deaths) or dementia deaths within five years (N= 72,926; 310 dementia deaths)—the latter to explore reverse causality—did not affect our results.

COMMENT

We found an association between elevated psychological distress and an increased risk of dementia death in a large general population sample of apparently dementia-free adults which remained after adjustment for age, gender, OSC, education, alcohol use, smoking, and existing CVD and diabetes. Cardiovascular risk factors have been linked with dementia[7] but the association found here remained after controlling for them, so implicating other explanations for the gradient seen. One possibility is a toxic effect of hypercortisolaemia in depression on the hippocampus.[8] Further research is required to investigate whether appropriate treatment of depression reduces dementia risk.

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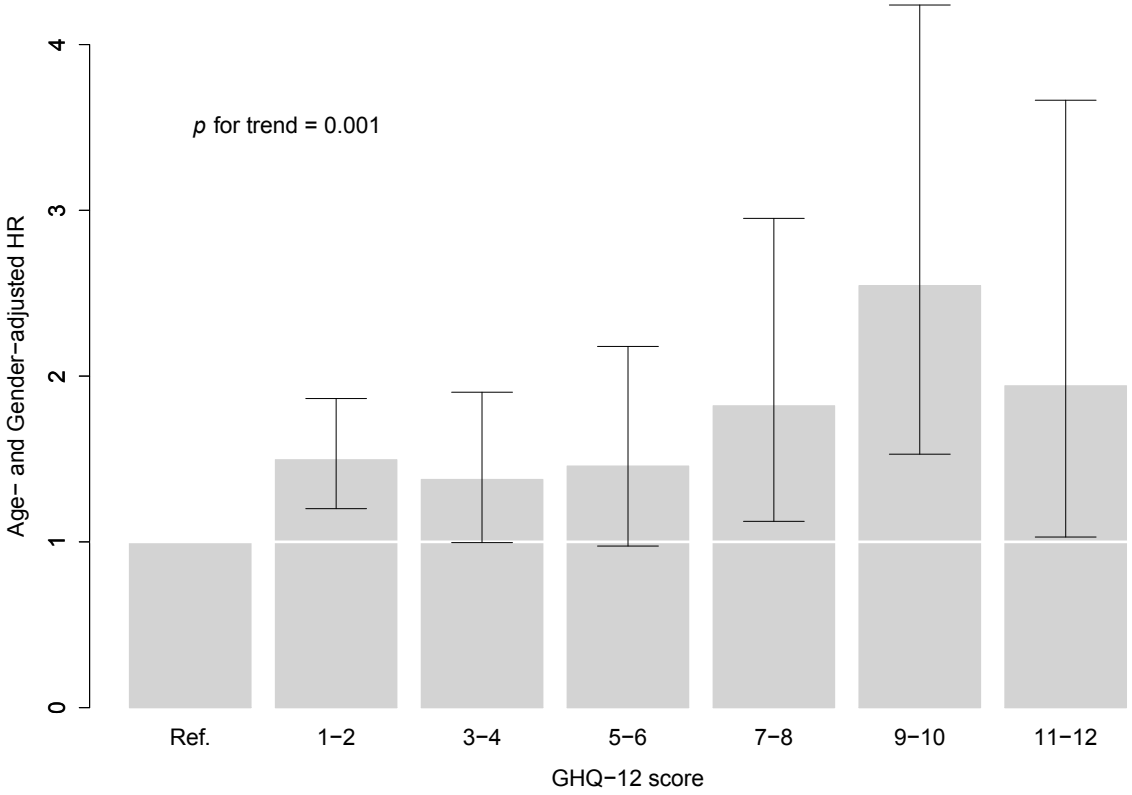
Figure 1. Age- and gender-adjusted hazard ratios with 95% confidence intervals for psychological distress in relation to the risk of dementia death: the Health Surveys for England



Reference = zero score on GHQ-12. Higher score indicates greater distress.