Psychological wellbeing, health and ageing

Online supplement

Eudemonic wellbeing and survival in the English Longitudinal Study of Ageing

The English Longitudinal Study of Ageing (ELSA) is a longitudinal cohort study men and

women aged 50 and older living in England.[1] It began in 2002 with 11,391 respondents who

had previously taken part in the Health Survey for England. Comparisons of the

characteristics of participants against results from the national census show that the sample

is representative sociodemographically of the English population. Of the core sample,

10,798 (94.8%) consented to have their data linked to mortality records, and 9,050 had

complete data on eudemonic wellbeing and other measures used in these analyses. These

participants were tracked from wave 1 of ELSA (2002/3) until early 2011, an average of 8

years, 6 months. There were 1,542 fatalities and 7,508 survivors.

Measures

Eudemonic wellbeing was assessed with 15 items of the CASP-19 questionnaire, excluding

items related to enjoyment.[2] Although the CASP-19 was devised with four subscales,

different psychometric solutions have been proposed.[3] The grouping of items here was

made in order to capture several dimensions of eudaimonia in one scale. Thus items

measured control (e.g. 'I feel that what happens to me is out of my control', reverse scored),

personal growth (e.g. 'I choose to do things that have never done before'), autonomy (e.g. 'I

feel that I can please myself what I do'), purpose in life (e.g. 'I feel that my life has meaning'),

and self-acceptance (e.g. 'I feel satisfied with the way my life has turned out'). The

Cronbach α was 0.86, indicating good internal consistency. Scores could range from 0 – 45.

Socioeconomic indicators included ethnicity, marital status, employment status, and

total household wealth, including financial wealth (savings and investments), the value of

any home and other property (less mortgage), the value of any business assets and physical

wealth such as artwork and jewellery, net of debt. Wealth is the most robust indicator of

socioeconomic circumstances and standard of living in ELSA,[4] and was divided into age-adjusted quintiles for the purposes of analysis. Education was classified into lower (no qualifications), intermediate (O level, A level, etc), and higher (degree and higher degree). Baseline health status was assessed by asking participants if they suffered from one or more long-standing illnesses, and if the illness limited their daily activities. The two questions were combined to form a dichotomous variable, classifying participants as suffering from a limiting long-standing illness or not. Additionally, the presence of doctor diagnosed cancer, coronary heart disease (CHD), stroke, diabetes, heart failure, and chronic lung disease (asthma, bronchitis, and chronic obstructive lung disease) was established. Baseline mental health status was assessed in terms of doctor diagnosed depressive illness over the previous two years, together with the presence of elevated symptoms of depression. Depressive symptoms were measured using the 8-item Centre for Epidemiologic Studies Depression Scale (CES-D), an instrument with good internal reliability ($\alpha = 0.80$ in this sample) and validity among older people.[5] As in previous studies, a score of ≥ 4 was used to indicate significant depressive symptoms.[6] Three health behaviours were also assessed: current smoking, engagement in any vigorous or moderate activity at least once per week, and drinking alcohol at least daily. Mortality data were obtained through linkage with the National Health Service Central Data Registry.

Statistical analysis

Participants were into quartiles of eudemonic well-being; the groups are of unequal sized because of ties in values. Cox proportional hazards regression models were used to estimate hazard ratios (HR) of death and 95% confidence intervals, with the lowest eudemonic wellbeing quartile as the reference group. Five models were tested. Model 1 adjusted for age (categorised as 50-59, 60-69, 70-79, and ≥ 80 years) and gender. The demographic indicators (wealth, education, ethnicity, marital status and employment status) were added in model 2, and model 3 included health indicators (limiting longstanding illness, cancer, CHD, stroke, diabetes, heart failure, and chronic lung disease at baseline).

Depressive illness and symptoms of depression were added in model 4 to establish whether associations between eudemonic wellbeing and mortality are independent of negative emotional states. The three health behaviours (smoking, physical activity, and alcohol consumption) were added in model 5. Results are presented as adjusted hazard ratios with 95% confidence intervals.

The number of participants with mortality and wellbeing data was 9,650 in total. We lost 600 cases from the analysis because of missing data for some of the covariates, primarily wealth which could not be computed for a number of people. We checked whether inclusion of these individuals would have modified the results, by computing Model 1 (age and gender adjusted) of the regression analysis on the complete 9,650. The odds ratios for the eudemonic quartiles were 0.611, 0.539 and 0.419 for the 2nd, 3rd and highest quartiles respectively, close to the 0.620, 0.547 and 0.422 in the sample of 9,050. We also computed a fully adjusted model excluding wealth, and findings were very similar to those detailed in Table 1, Model 5. So we believe that the loss of participants did not markedly change the pattern of associations.

1.   Steptoe A, Breeze E, Banks J, Nazroo J. Cohort profile: English Longitudinal Study of Ageing. *Int J Epidemiol.* in press.

2.   Hyde M, Wiggins RD, Higgs P, Blane DB. A measure of quality of life in early old age: the theory, development and properties of a needs satisfaction model (CASP-19). Aging Ment Health. 2003; **7**(3): 186-94.

3.   Wiggins RD, Netuveli G, Hyde M, Higgs P, Blane D. The evaluation of a self-enumerated scale of quality of life (CASP-19) in the context of research on ageing: A combination of exploratory and confirmatory approaches. Soc Ind Res. 2008; **89**(1): 61-77.

4.   Banks J, Karlsen S, Oldfield Z. Socio-economic position. In: Marmot M, Banks J,
      Blundell R, Lessof C, Nazroo J, editors. Health, Wealth and Lifestyles of the Older
      Population in England. London: Institute of Fiscal Studies; 2003. p. 71-125.

5.   Steffick DE. Documentation of Affective Functioning Measures in the Health and
      Retirement Study. Ann Arbor: Survey Research Center University of Michigan.; 2000.

6.   Demakakos P, Pierce MB, Hardy R. Depressive symptoms and risk of type 2
      diabetes in a national sample of middle-aged and older adults: the English
      longitudinal study of aging. Diabetes Care. 2010; **33**(4): 792-7.