Re: “Personality and All-Cause Mortality: Individual-Participant Meta-Analysis of 3,947 Deaths in 76,150 Adults”

Citation for published version:
https://doi.org/10.1093/aje/kwt300

Digital Object Identifier (DOI):
10.1093/aje/kwt300

Link:
Link to publication record in Edinburgh Research Explorer

Document Version:
Peer reviewed version

Published In:
American Journal of Epidemiology

General rights
Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.
“Personality and All-Cause Mortality: Individual-Participant Meta-Analysis of 3,947 Deaths in 76,150 Adults” by Jokela, Batty, Nyberg, Virtanen, Nabi, Singh-Manoux, and Kivimäki

Alexander Weiss
Department of Psychology
School of Philosophy, Psychology and Language Sciences
The University of Edinburgh
7 George Square
Edinburgh EH8 9JZ
United Kingdom

Paul T. Costa, Jr.
Behavioral Medicine Research Center
Department of Psychiatry and Behavioral Sciences
Duke University Medical Center
2212 Elder Street
Durham, NC 27710
USA

Department of Mental Health
Johns Hopkins Bloomberg School of Public Health
624 N. Broadway
Baltimore, MD 21205
USA
Paul T Costa, Jr. receives royalties from the NEO-PI-R.

Corresponding author: Alexander Weiss, Department of Psychology, School of Philosophy, Psychology and Language Sciences, The University of Edinburgh, 7 George Square, Edinburgh EH8 9JZ, United Kingdom. Telephone: +44 131 650 3456, Email: alex.weiss@ed.ac.uk

Word Count: 537
We join Chapman (1) in acknowledging the importance of Jokela et al.’s recently published paper (2). The study of personality trait predictors of mortality is consequential and, with this study, it is clear that low conscientiousness deserves a seat at the table with major risk factors of early death. Jokela et al. accomplished this via an individual participant meta-analysis of seven cohorts to follow up on Friedman and others’ (3) work that revealed the importance of low conscientiousness as a risk factor. We expect that this paper will be oft cited and that this statistical approach will be used in similar future studies.

However, we depart from the authors’ conclusion that “... the present results [of their study] suggest that low conscientiousness is the only higher-order personality trait of the five-factor model that predicts higher mortality risk across populations.” (p. 673). This generalization is overly broad, premature, and not tenable given two limitations of their study.

The first limitation is that while the combined sample size of Jokela et al.’s study was large ($N = 76,150$), in proportional hazards analysis, power is not determined by the number of participants, but by the number of events (4, 5). In light of this, compared to some previous studies (e.g., 6, 7), the British Household Panel Survey, Household, Income and Labour Dynamics in Australia Survey, and the Survey of Midlife Development in the United States all had low power. This problem with power is further illustrated by the fact that, despite their assertion that “...low conscientiousness is the only higher-order personality trait of the five-factor model that predicts higher mortality risk across populations.” (p. 673), conscientiousness effects were not significant in the Household, Income and Labour Dynamics in Australia Survey and the Survey of Midlife Development in the United States, just identified as lower in power than other studies, and in the Wisconsin Longitudinal Study.
sibling sample, which had the next lowest power (see figure 1 in ref 2). Clearly, the total number of deaths is a key determinant of a study's findings or lack thereof.

This limitation is not ameliorated by Jokela et al.'s data analytic approach or by any other that we are aware of. As pointed out by Munafò and colleagues (8); “Meta-analysis, while valuable and offering the potential to generate new hypotheses, is not a replacement for adequately powered primary studies.” (p. 278).

The second limitation is the inadequate measurement of personality, which could seriously compromise the scales’ predictive validities (9). The seven studies used several different very brief scales to measure the five higher-order factors likely resulting in content and construct deficiency of their putative personality factors. As a result, the authors may not have found consistent results for factors other than conscientiousness because these factors were not adequately measured.

Unfortunately, the authors present no evidence regarding the construct validity, i.e. high positive correlations between the different brief scales. Thus, as in other studies (8-11), the inconsistent findings displayed in Figure 1 (2) could reflect this limitation of their study. In short, very little confidence can be given to their conclusions that only conscientiousness is the only important personality predictor.

None of this is to say that we do not admire the researchers’ efforts or appreciate the importance of their findings concerning conscientiousness. However, well-powered primary studies with valid measures of all the five factors may identify other important predictors of
mortality and thus we think it is too soon to ‘close the door’ on other personality factors as important predictors of mortality.
References


