Letters

Trends in sex differences in mortality from heart disease

BMJ 2002; 324 doi: http://dx.doi.org/10.1136/bmj.324.7331.237a (Published 26 January 2002) Cite this as: BMJ 2002;324:237

Sex is not same as gender, and theory was first proposed in 1950s, say authors

D A Lawlor, MRC research training fellow (D.A.Lawlor@bristol.ac.uk**), S Ebrahim, professor in epidemiology of ageing, G Davey Smith, professor of clinical epidemiology**

Department of Social Medicine, University of Bristol, Bristol BS8 2PR

Department of Anthropology, University of Durham, Durham DH1 3HN

Department of Diabetes and Department of Epidemiology and Public Health, Medical School, University of Newcastle, Newcastle upon Tyne NE2 4HH

EDITOR—In referring to our paper, Editor's choice of 8 September states that “A group from Bristol grabs attention by arguing that the fact that men have much higher rates of heart disease than women may be nothing to do with gender.” **1** **2** This shows the current confusion over the use of the words sex and gender.

The *Oxford English Dictionary* (http://dictionary.oed.com/entrance.dtl) gives the following definition for gender: “Intended to emphasize the social and cultural, as opposed to the biological, distinctions between the sexes.” We would agree with this distinction.

In our study we argued that the fact that men have much higher rates of heart disease than women may be nothing to do with sex—that is, biology such as the female hormone oestrogen—but something to do with gender. Indeed, although the data presented in our study cannot test such a hypothesis, in the discussion we raised the possibility that gender differences in dietary habits (related to social and cultural influences on the way that women prepare, eat, and serve food to themselves and men) may be part of the reason why death rates from heart disease differ between women and men.

After our paper was published we discovered a letter published in the *Lancet* in 1956 that put forward the same theory.**3** The author's suggestion was based on his observations of variations in the sex difference between different ethnic groups in the United States and between different geographical areas.

Our analysis of secular trends over the past century and contemporary geographical variations suggested to us the same likely cause for the emergence of the difference between women and men in the occurrence of coronary heart disease. We were not aware of this letter at the time our paper was published; had we been, we would have cited it.

References

1.Lawlor DA, Ebrahim S, Davey Smith G.Sex matters: secular and geographical trends in sex differences in coronary heart disease mortality.*BMJ*2001;**323**: 541–545. (8 September.)

2.Editor's choice.Grabbed.*BMJ* 2001:323. (8 September.)

3.Keys A.Sex factor in coronary artery disease.*Lancet*1956;**ii**: 98–99.

Oestrogen may contribute to variation in mortality

Tessa M Pollard, lecturer (t.m.pollard@durham.ac.uk**), Colin Fischbacher, lecturer, Nigel Unwin, senior lecturer**

Department of Social Medicine, University of Bristol, Bristol BS8 2PR

Department of Anthropology, University of Durham, Durham DH1 3HN

Department of Diabetes and Department of Epidemiology and Public Health, Medical School, University of Newcastle, Newcastle upon Tyne NE2 4HH

EDITOR—Lawlor et al have outlined geographical and historical variations in sex differences in mortality from coronary heart disease, noting that a higher intake of energy from fat was significantly associated with a higher male:female ratio for mortality from coronary heart disease.**1** They suggest that these findings cannot be explained by variation in oestrogen concentrations because oestrogen may not, as widely believed, protect against coronary heart disease and, in any case, oestrogen concentrations are not variable across populations or history.

We suggest that the possibility that oestrogen may play a part in explaining their findings cannot be dismissed on either of these counts. A large body of evidence indicates that oestrogen protects women against coronary heart disease (partly by causing less atherogenic serum lipid profiles), and several biochemical pathways by which oestrogen could exert such an effect have been identified.**2**

Studies have shown that ovarian function and oestrogen concentrations differ greatly in different populations. Jasienska and Thune outlined some of the evidence for variation in ovarian function and argued that it is associated with population variation in rates of breast cancer.**3** Similarly, Bernstein and Ross cited several studies showing low oestrogen concentrations in populations with low rates of breast cancer, including in rural China and rural Japan.**4** Industrialised countries have seen a trend towards earlier menarche over the past 100 years,**5** which suggests that the level of ovarian function has been increasing**4** and that oestrogen concentrations will vary over time as well as geographically.

Several studies have shown a positive association between nutritional status and ovarian function. **3 5**