

## Letter to the Editor

# Diabetic Women Suffer More Years of Life Lost Than Diabetic Men

Zhi-Jiang Zhang,<sup>1</sup> Genming Zhao,<sup>2</sup> Chuanhua Yu,<sup>1</sup> Yongyi Bi,<sup>1</sup> Qingjun Zhang,<sup>3</sup> and Yiqing Song<sup>4</sup>

<sup>1</sup>School of Public Health, Wuhan University, 185 Donghu Road, Wuhan 430071, China

<sup>2</sup>School of Public Health, Fudan University, Shanghai 200032, China

<sup>3</sup>Hubei Center for Disease Prevention and Control, Wuhan 430079, China

<sup>4</sup>Department of Epidemiology, Indiana University, Richard M. Fairbanks School of Public Health, IN 46202, USA

Correspondence should be addressed to Zhi-Jiang Zhang; zhang.zj@msn.com

Received 4 July 2014; Accepted 25 August 2014; Published 3 December 2014

Academic Editor: Maria L. Dufau

Copyright © 2014 Zhi-Jiang Zhang et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

We read with interest the recent paper by Harjutsalo and colleagues [1] which reported that the standardized mortality ratio due to ischemic heart disease was higher in women than in men in the cohort of type 1 diabetes: within the early-onset (0–14 years) cohort, the standardized mortality ratio was 52.8 (95% confidence interval 36.3–74.5) in women compared with 12.1 (9.2–15.8) in men; within the late-onset (15–29 years) cohort, the standardized mortality ratio was 15.8 (11.8–20.7) in women compared with 5.0 (4.3–5.8) in men.

Their results are in agreement with epidemiologic data from China. Based on the death registry data from Shanghai CDC, female diabetic patients (both type 1 and type 2) suffer more Years of Life Lost (YLLs) than male diabetic patients [2]. Specifically, the average of YLLs per diabetic patients, defined as the sum of YLLs divided by total number of female or male diabetic patients, was higher in female diabetic patients than male diabetic patients from 1976 to 1996 (Figure 1(a)); the average of YLLs per resident, defined as the sum of YLL divided by total number of female or male residents in Shanghai, was higher in female residents than male residents (Figure 1(b)).

An earlier population-based study in China showed that female diabetic patients were more likely to have chronic diabetic complications [3]. Of the 255 diabetic patients who were identified by fasting-glucose screening in a cross-sectional survey of 1960 adult residents enrolled through a multistage

sampling scheme from 8 communities in Shanghai, the prevalence of diabetic complications (including any of diabetic retinopathy, diabetic nephropathy, diabetic foot ulcer, or diabetic cardiovascular complications) in diabetic women was higher than that in diabetic men (37.7% versus 24.8%, odds ratio 1.74, 95% confidence interval 1.01–3.06,  $P = 0.05$ ) [3]. These two studies are, to our knowledge, the first to report the gender difference in diabetic mortality [2] and chronic diabetic complications [3] in Chinese population, supported by data from other countries [1, 4–6]. These findings suggest the loss of female gender as a protective factor in terms of life expectancy and a variety of chronic diseases, for example, cardiovascular disease, in the setting of diabetes.

In summary, diabetic women are at higher risk of chronic complication and mortality than diabetic men. Further studies investigating the underlying mechanisms are warranted. More efforts are needed for controlling diabetic complications for women, for example, health education for both patients and health professionals.

## Ethical Approval

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008 (5).

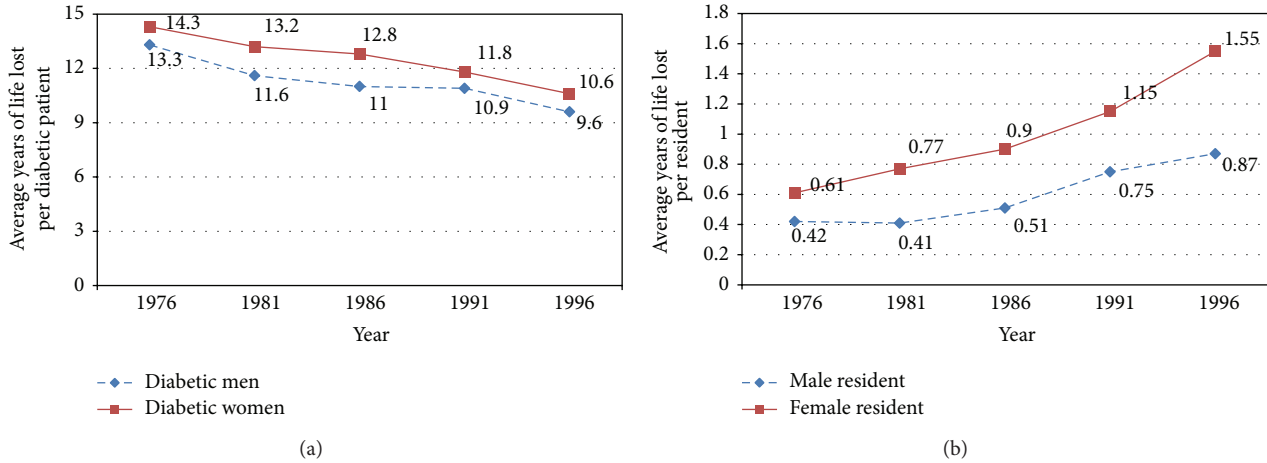


FIGURE 1: The average of Years of Life Loss (a) per diabetic patient and (b) per resident in Shanghai between 1976 and 1996.

## Conflict of Interests

Zhi-Jiang Zhang, Genming Zhao, Chuanhua Yu, Yongyi Bi, Qingjun Zhang, and Yiqing Song declare that they have no conflict of interests.

## References

- [1] V. Harjutsalo, C. Maric-Bilkan, C. Forsblom, L. Thorn, J. Wadén, and P. H. Groop, "Sex-related differences in the long-term risk of microvascular complications by age at onset of type 1 diabetes," *Diabetologia*, vol. 37, no. 1, pp. 144–148, 2011.
- [2] Z.-J. Zhang, S.-B. Li, G.-M. Zhao, and M. Han, "Analysis of disease burden of diabetes mellitus in 1971–2000 in Shanghai," *Zhonghua Yu Fang Yi Xue Za Zhi*, vol. 38, no. 5, p. 338, 2004.
- [3] Z. J. Zhang, Y. M. Wu, P. Jiang, and G. M. Zhao, "Study on risk factors of diabetes mellitus complications in a natural population," *Chinese General Practice*, vol. 4, no. 12, pp. 970–972, 2001.
- [4] S. Allemanna, C. Sanera, M. Zwahlenb, E. R. Christa, P. Diema, and C. Stettlera, "Long-term cardiovascular and non-cardiovascular mortality in women and men with type 1 and type 2 diabetes mellitus: a 30-year follow-up in Switzerland," *Swiss Medical Weekly*, vol. 139, no. 39-40, pp. 576–583, 2009.
- [5] A. J. Swerdlow and M. E. Jones, "Mortality during 25 years of follow-up of a cohort with diabetes," *International Journal of Epidemiology*, vol. 25, no. 6, pp. 1250–1261, 1996.
- [6] C. L. Morgan, C. J. Currie, and J. R. Peters, "Relationship between diabetes and mortality: a population study using record linkage," *Diabetes Care*, vol. 23, no. 8, pp. 1103–1107, 2000.