

Are Women More Vulnerable to Environmental Pollution?

Maureen E. Butter

*Science Shop for Biology, Science and Society Group, University of Groningen,
P.O. Box 72 9700 AB Groningen, Netherlands
Fax: 0031503635, E-mail: M.E.Butter@rug.nl*

KEYWORDS Gender. Hazards. Exposure. Vulnerability. Autoimmune. Sex Steroids

ABSTRACT Environmental health of women is compounded by biological factors and social circumstances like poverty, gender inequality and gender invisibility. This paper explores biological differences with respect to chemical hazards. Biological differences abound on all levels of organization, from the molecular level to the brain. Gender differences in toxicity have been reported for many substances. Most research into chronic toxicity and gender has been directed at reproductive health and reproductive cancers. Reproductive effects on offspring quality have been reported for both sexes and can have multigenerational effects. Uptake, transport, metabolism, storage, and excretion account for many differences in internal exposure. There are also inherent differences in toxic response. Many differences are influenced by sex steroids. There is a general dearth of data, in particular with regard to environmental contaminants. Because of a general synergy between toxic substances and infectious diseases, environmental pollution aggravates the burden of disease in a more than disproportional way. This is not accounted for in the health statistics. Regulation of female immune system differs from men. Most autoimmune disorders show strong gender disparity, and for some autoimmune diseases environmental or occupational exposures are known risk factors. A good strategy would be to systematically research important pollutants like pesticides and blacklisted substances for gender differences, or explore diseases with strong gender disparity for environmental risk factors. It is recommended to give equal priority to chemical hazards and infectious diseases and address them simultaneously. Given the long-term and often multigenerational effects on population health, it is paramount to specifically include women.