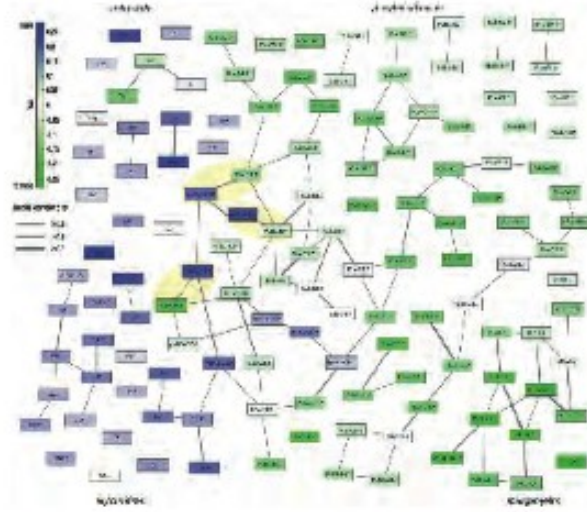


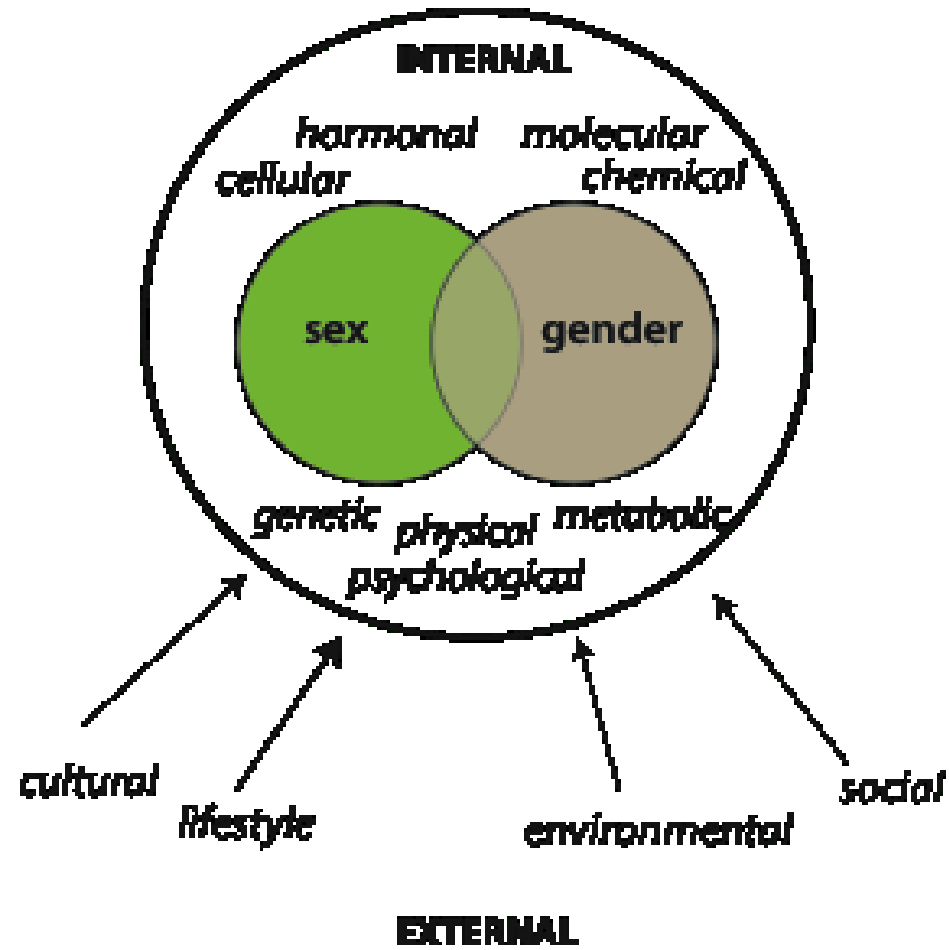
MUNI | RECETOX

P8/0290 biomarkery a pohlaví

PREVIEW



1. Recognising sex and gender as key variables



2. Addressing research quality issues

- ▶ **Exclusion of women from studies** (e.g. heart, pollution, smoking, voice recognition, crash dummies, radiation doses)
- ▶ Attachment to the **'science is gender neutral' paradigm** (e.g. efficacy of vaccinations, safety of drugs)
- ▶ Unrecognised **'gender blindness'** (e.g. stem cells, innovation)
- ▶ Conformity with **'male as the norm'** models (e.g. toxicokinetics, cars, pain, radiation dosimetry)
- ▶ Lack of awareness of the **relevance of sex/gender factors**
- ▶ **Gaps in researcher training**, women and men (e.g. analysing medical risk by sex)
- ▶ **Gaps in science knowledge** (e.g. less evidence for women)
- ▶ **Fuzzy concept of 'excellence'** (e.g. women less successful in getting ERC grants, across all ERC themes)
- ▶ **Underreporting/misreporting of results** (e.g. Reboxetine)

3. Improving research outcomes

- ▶ Breast cancer and colon **cancer screening and diagnosis** (men and women, healthcare interventions)
- ▶ **Diversifying ideas**, and building higher **collective intelligence** of teams (www.innocentive.com, FoldIT, Discover Markets)
- ▶ Role of **sexual dimorphism** – from biomarkers to control of wildlife disease
- ▶ **Efficacy** of vaccination strategies (e.g. men/women cervical cancer, flu) and **drugs** (e.g. 8 out of 10 prescription drugs withdrawn from market in the US during 1997- 2001 were **more dangerous to women** than to men)
- ▶ Effective/**sustainable energy use** in developing countries (e.g. failure of the improved design of wood burning cooking stoves)
- ▶ Rehabilitation and assistive technologies responsive to **demographic changes** (e.g. aging, wellbeing, longer work life)
- ▶ Evaluation of **risk** (e.g. women and men's attitudes to risk taking)

Evidence → Dialogue → Consensus → Action

Sex and gender as key variables

Biomarkers (e.g. in metabolic profiles)

Stem cells (e.g. in regenerative properties of cells)

Pain (e.g. experiencing and dealing with pain)

Diagnostics (e.g. colon and breast cancer)

Toxicokinetics (e.g. efficacy of vaccinations, drugs)

Environmental toxicology (e.g. impact of pollution)

Radiology (e.g. dosimetry, medical use)

Crash dummy design (e.g. size/anatomy, pregnancy)

Car safety (e.g. impact of accidents)

Communication (e.g. voice recognition, collective intelligence)

Energy use (e.g. household behaviour)

Health (e.g. gender medicine), **Agriculture** (e.g. hybrid seeds),
etc

Quality issues

- ▶ **Outdated/inadequate models** (e.g. Reference Man in radiation dosimetry, pain, toxicology, epidemiology)
- ▶ **Gender neutrality/gender blindness** (e.g. not recording sex of cells used in experiments)
- ▶ **Women excluded from studies/not grouping women by age and hormonal state**
- ▶ **Risks not analysed by sex** (e.g. harm done by drug, exposure to pollutants)
- ▶ **Not reporting/misreporting** (e.g. Reboxetine, efficacy of vaccinations)
- ▶ **Flaws in study/intervention design** (e.g. energy use, vaccination programmes)
- ▶ **Gaps in knowledge** (e.g. generally less evidence for women, but also for men as in breast cancer and osteoporosis)

Relevance, efficacy, safety

Healthcare interventions (e.g. cervical cancer vaccination strategies, screening programmes, gender medicine)

Innovation strategies (e.g. engaging consumers in product idea creation – *Discover Markets*, crowd sourcing – www.innocentive.com)

Societal challenges (e.g. energy and cooking stoves, demographics shifts and maintenance of cognitive and physical performance)

Drug development (e.g. personalised medicine)

Evidence → **Dialogue** → Consensus → Action

Evidence → Dialogue → **Consensus** → Action

Science leaders' consensus recommendations

(report and Briefing Notes @ www.genderinscience.org)

EUROPEAN SCIENCE FOUNDATION Fraunhofer The Research Council of Norway HÖGSKOLEVERKET Swedish National Agency for Higher Education ES

genSET www.genderinscience.org

S systems & culture
C collaborative partnerships
I intellectual capital
E excellence in knowledge

N networks of interactions
C careers in research
E expertise for innovation

G governance structure
E evidence & explanation
N norms & narratives
D diversity & inclusion
E education & enterprise
R roles & stereotypes

E executive decisions
Q quality of work
U unbiased knowledge
A assessment of ability
L leadership & management
I institutional mechanisms
T technology transfer
Y your responsibility

Logo icons at the bottom: Fraunhofer, European Union, FORTH, and portia.

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ISR INTERDISCIPLINARY SCIENCE REVIEWS

Gender in Science

Maney Publishing
0308-0188

Science community's and policy makers' response to the new focus on sex/gender issues

- ▶ Important to ensure **quality in science knowledge making**
- ▶ Important to engage in the **dialogue the scientists, gender scholars and policy makers**
- ▶ **Gender Summit** as high-level platform - 2011 and 2012 attracted 100 top-level speakers (research, policy), and over 800 attendees
- ▶ The **Manifesto** was signed by 4500 people working in science in the 1st year of going on-line
- ▶ **International interest:** Summit participants from 40 countries; next Gender Summit in the USA - NSF as the lead partner
- ▶ **ERA** – gender equality as one of core pillars
- ▶ **RRI** (responsible research and innovation) – new EC policy measure includes gender equality as one of its six principles

Evidence → Dialogue → Consensus → **Action**

'Best practices' and standards needed for integrating gender dimension

In particular for:

- ▶ **HORIZON 2020** – not repeating the mistakes of past FPs
- ▶ **ERA** – challenges of meeting the diversity of national, regional, European priorities and contexts
- ▶ **RRI** – combining engagement of key actors, ethics, gender equality, governance, public engagement, open access
- ▶ **Guardians of excellence** – research funders, research performers, research publishers, research communicators, bioethics
- ▶ **Researcher training** – addressing sex/gender related risk/efficacy/impact variations between different populations in studies & models
- ▶ **Science curriculum** – correcting and not propagating gaps and flaws in knowledge
- ▶ **Policy development** – using research evidence; meeting demographic shifts, e.g. challenges of aging society (working longer, chronic diseases, what counts as a 'normal' cognitive and physical performance)

Emerging tools and methods

Gendered Innovation: “methods for sex/gender analysis to create new knowledge”, <http://genderedinnovations.stanford.edu>

Discover Markets project,

<http://www.fraunhofer.de/de/leistungsangebot/forschung/discover-markets.html>

Case studies, e.g. <http://www.yellowwindow.be/genderinresearch/>

Evidence: “*From ideas to market: the gender factor*”, “*The A-Z of why gender matters in research and innovation*”

Cross discipline/cross sector collaborative networks, e.g.

Photonics4Life, <http://www.photonics4life.eu>

Consensus seminars to resolve controversial issues

Gender Summit for sharing knowledge between key actors

Conclusions

Strong research evidence of different flaws in science practice and knowledge, which make outcomes less evidence based and less safe for women

New support from science leaders and EU policy concerned about impact on excellence

Gender dimension as a strategic driver in developing markets for science knowledge

Europe's advantage: implementation through HORIZON 2020, Innovation Union, ERA

Systematic methods are emerging for integrating the gender dimension in research process

Thank you

For further details please send an email to
ep@portiaweb.org.uk

For background information please consult
www.genderinscience.org and www.gender-summit.eu

Děkuji za pozornost